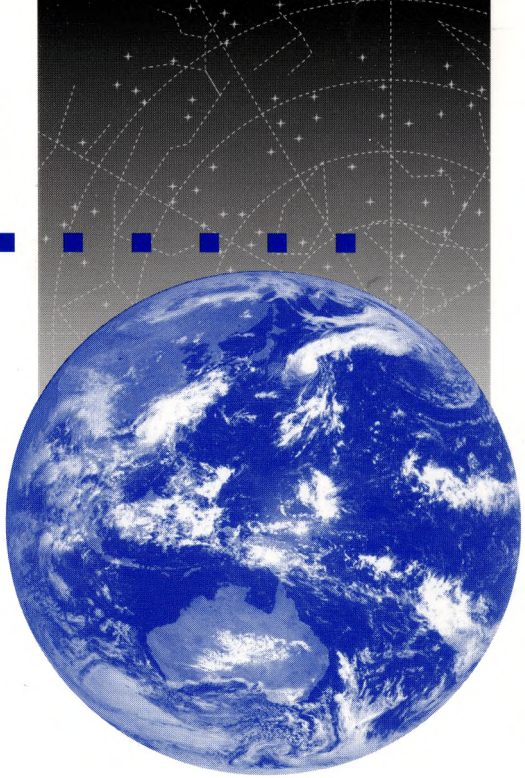
MOTOROLA

Information Systems Group



Premier 33.6

33.6 KBPS V.34 Data/Fax Modem

USER'S GUIDE

MOTOROLA

Premier

33600 BPS Data/Fax Modem
User's Guide

Motorola
20 Cabot Boulevard
Mansfield, MA 02048

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Installing the External Modem

WHAT YOU NEED

- Any PC or Mac
- A standard wall-mounted telephone jack no more than 6 feet from your computer
- Optional telephone
- **Selecting a Shielded Serial Cable:** A cable with a male DB25 connector on one end and a connector that fits your computer's serial port on the other end
  (available at most stores that sell computers)

  If your PC has 25-pins on its serial connector: You need a cable with a 25-pin female connector to connect to your PC and a 25-pin male connector to connect to the modem.
  If your PC has a 9-pin serial connector: You need a cable with a 9-pin female connector to connect to your PC and a 25-pin male connector to connect to the modem.
  For a Macintosh: Make sure that the round end of the cable has 8 pins. This end connects to your Mac. The end that connects to your modem should have a 25-pin male connector. This should be a full hardware handshaking cable as described by Apple.
  For asynchronous operation: Make sure the connector includes pins 2-8 and 20. See the Appendix for more details.
  For synchronous operation: Make sure the connector includes pins 2-8, 15, 17, and 20. See the Appendix for more details.

☞ **Note**
If you use fax software not provided with the package, make sure it supports Class 1 fax operation.

WHAT WE PROVIDE

- Motorola 33600 BPS Fax Modem
- Installation and Troubleshooting Guide
- Application software (optional)
- Product Registration Card (U. S. products only)
- RJ11 phone cable
- Wall mount transformer with power cord (+ / - 9 Vac, 800 ma)

PHYSICAL INSTALLATION

The figure on the next page shows you the connections you need to make. Follow these steps to install the modem:

1. Turn the power switch OFF on both your modem and computer.

2. *For PC compatibles:*
   Connect the serial cable to your computer's serial port. If you are not sure how to connect this cable to your computer, consult your computer's documentation to confirm that you are connecting it to the correct port. This port probably is labeled MODEM, RS-232, SERIAL, or COM*X* (where *X*=1, 2, 3, or 4).

   For Macs:
   Connect the DIN connector on the provided serial port cable to your computer's serial port. This port, usually on the rear of a Mac, is indicated by a phone handset icon:

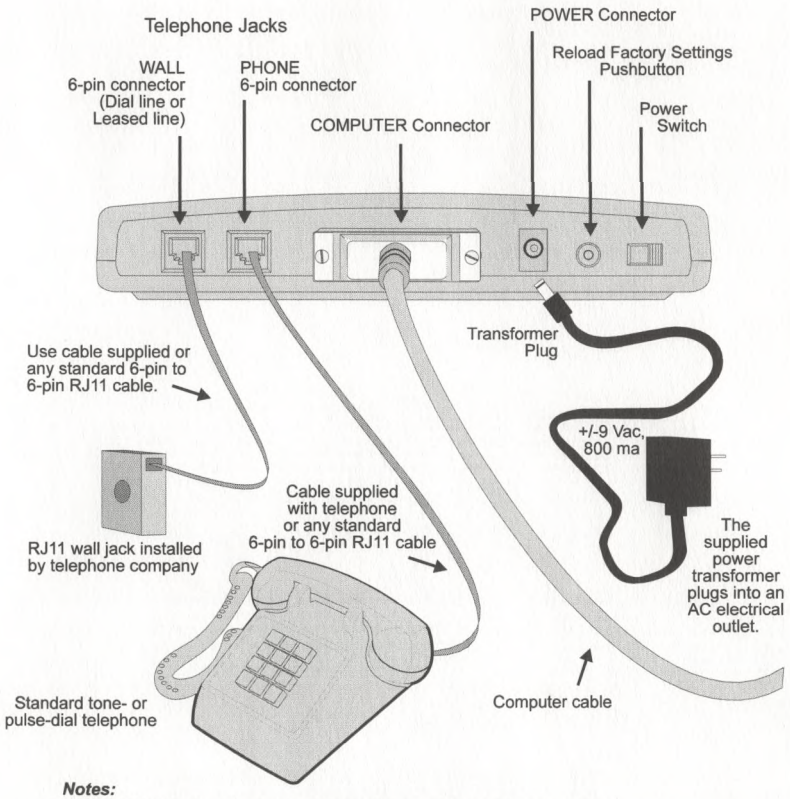
   Connect the 25-pin connector (DB-25) at the other end of either cable to the connector labeled COMPUTER on the back of the modem.

3. WALL: Connect one end (it doesn't matter which end) of the supplied telephone cable to the wall jack that provides your telephone service. Connect the other end of the cable to the jack labeled WALL on the back of the modem.

4. POWER: Plug the small end of the supplied power cord to the connector labeled POWER on the back of the modem. Plug the other end into a surge-protected power strip or wall outlet.

5. PHONE: If you want to use a standard telephone with the modem, use the telephone cable supplied with the telephone to connect your telephone to the jack labeled PHONE on the back of the modem. You can then use the line for voice calls when not using the modem.

6. Now go to the *Getting Online* section.



Notes:

1. *The WALL jack on the back of the modem can be used to connect to either tone-dial or pulse-dial telephone services.*

2. *You do not need to connect a telephone to your modem in order to use your modem. By doing so, however, you can easily use the telephone line for voice calls when the modem is not in use.*

Making Connections for the External Modem

Installing the Internal Modem

WHAT YOU NEED

- Any IBM compatible PC with an available ISA bus slot
- A standard wall-mounted telephone jack 6 feet from your computer
- Telephone--optional

WHAT WE PROVIDE

- Motorola 33600 BPS Fax Internal Modem
- Installation and Troubleshooting Guide
- Application software (optional)
- Product Registration Card (U. S. products only)
- RJ11 phone cable

SWITCHES ON THE MODEM

The figure on the next page shows you the DIP switch locations on your modem and their factory defaults. The modem comes configured for COM 3, IRQ 5 from the factory. If your computer is Plug and Play compatible, refer to the figure on the next page for setting switch S2 so that you can use the modem's Plug and Play option. If Plug and Play fails to operate properly, use the manual switches shown in the figure on the next page or CardSet, described below.

Caution

To prevent electrical static discharge from damaging the modem, physically touch the metal chassis of your computer with your hand before unwrapping the card.

USING CARDSET TO SET YOUR COM PORTS AND IRQs

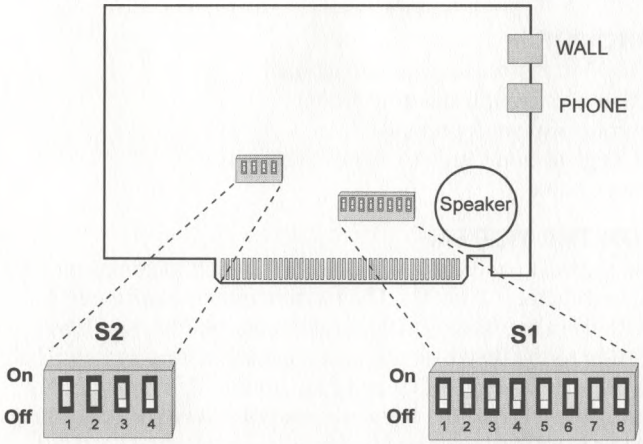
A Plug and Play card setup utility is available on the QuickLink II disk which comes with your Premier. If your computer is not Plug and Play compatible and you do not have Windows 95, you can use this "Plug and Play" utility to set your COM port and IRQ settings.

First, on the Premier card set DIP switch S2 for Plug and Play. Then go to your CardSet.txt file, which provides full details on how to enter commands for specific COM port/IRQ settings. You'll need to copy the CardSet.exe program to the root directory of your hard disk:

For example, COPY a:\cardset.exe c:\cardset.exe

CardSet must run each time you turn on your computer, so you need to include a command in your AUTOEXEC.BAT file. The command should always begin with C:\CARDSET MOT1580

*For example,*C:\CARDSET MOT1580 /Cx /In /1
where x = COM 1, 2, 3, or 4 and n = interrupt levels (IRQs) 1-9



Switch S2 comes set for Manual/ Strap Options Enabled *default*

Switch S1 comes set for COM 3 / IRQ 5 *default*

Switch S2	Manual	Plug and Play
1	On	Off
2	On	Off
3	Off	On
4	Off	On

Switch S1	COM1	COM2	COM3	COM4	IRQ2	IRQ3	IRQ4	IRQ5
1	On	On	Off	Off				
2	On	Off	On	Off				
3					On	Off	Off	Off
4					Off	On	Off	Off
5					Off	Off	On	Off
6					Off	Off	Off	On

7&8 -- Not used

Caution

Alter switch positions gently with a pointed instrument (NOT a pencil).

Switch Locations on the Modem

PHYSICAL INSTALLATION

Caution

To prevent electrical static discharge from damaging the modem, physically touch the metal chassis of your computer with your hand before unwrapping the card.

The two figures on the next page show you how to install the internal modem into your computer:

1. Turn off your computer and any peripheral devices you've already installed in it. Unplug your computer.

2. Remove the computer's cover. Refer to your computer's manual for instructions.

3. Unscrew and remove the cover on the expansion slot that you've selected for the modem. Keep the screw and use it to screw the modem into place.

4. Insert the modem into the slot you've selected. (Make sure that the edge connector with "gold fingers" fits snugly in place.)

5. Now screw the modem's bracket to the rear panel of the computer.

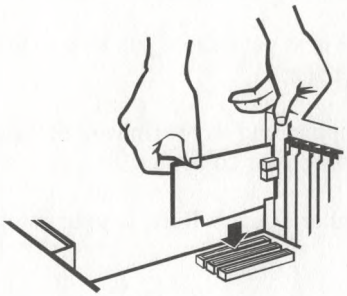
6. Replace the computer cover and secure its screws. Reattach all cables and the power cord.

7. WALL: Connect one end (it doesn't matter which end) of the supplied telephone cable to the wall jack that provides your telephone service. Connect the other end of the cable to the jack labeled WALL on the back of the modem.

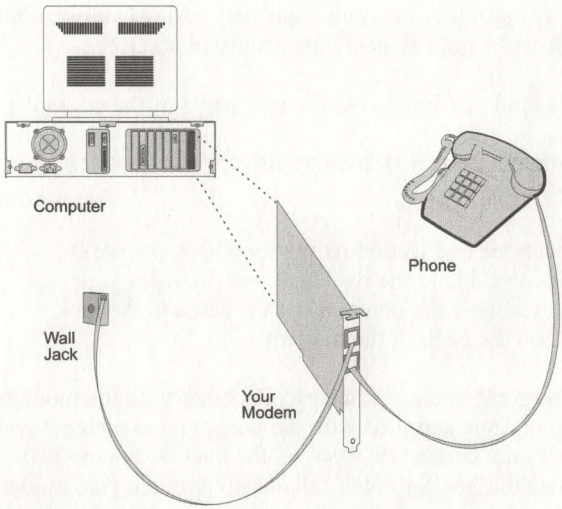
8. PHONE: If you want to use a standard telephone with the modem, use the telephone cable supplied with the telephone to connect your telephone to the jack labeled PHONE on the back of the modem. You can then use the line for voice calls when not using the modem.

Warning

Be sure to disconnect your phone cable if, after installing your modem, you go back into your computer to add another board or for any other reason.



Sliding Your Internal Modem into Your Computer



Making Connections for Your Internal Modem

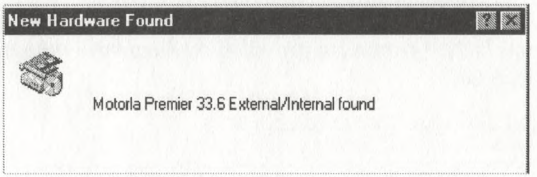
This section takes you through step-by-step instructions to configure your modem for proper operation in Windows 95 or Window 3.1*X* operating environments.

PC USERS: WINDOWS 95

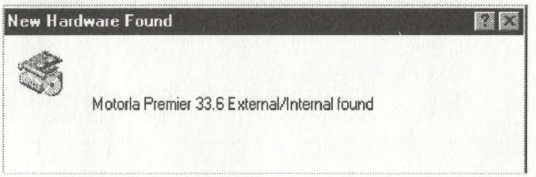
Before setting up in Windows 95, you should have completed the physical installation for your modem. We recommend that you enable Plug and Play for an internal modem if you have Windows 95.

If You Have an Internal Modem with Plug and Play Enabled or an External Modem

INTERNAL: When you enter Windows 95 with the internal modem installed for the first time, a dialog box appears saying,

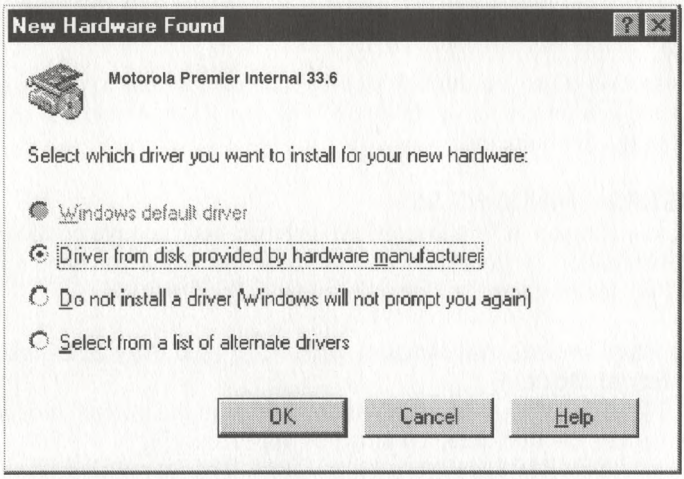


EXTERNAL: You get this message:



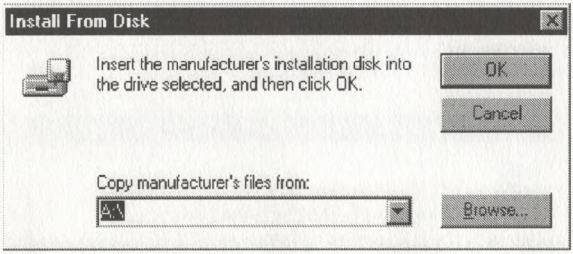
EXTERNAL: If this process fails, you need to go to the section called If You Have an Internal Modem with Plug and Play Disabled or an External Modem.

Select which driver you want to install for your new hardware:



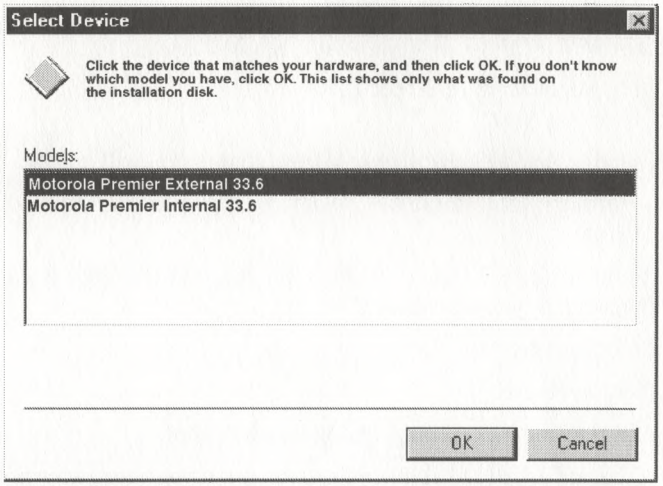
- ❑ Select *Driver from disk provided by hardware manufacturer.*
- ❑ Choose *OK.*

The next dialogue screen to appear is:



- ❑ When asked to insert a disk, insert your QuickLink II communications software disk. Choose the appropriate disk drive, a:\ or b:\, and then select OK.

❑ When prompted, select your modem from the choices:



❑ Select OK.

Your modem should now be successfully installed and ready to go! You can go to QuickLink II or your selected software and follow the guidelines for making connections.

To verify your modem is successfully installed, go to the section called Windows 95: Verifying Your External/Internal Modem's Presence.

If You Have an Internal Modem with Plug and Play Disabled or an External Modem

Setting your COM port in Windows 95

1. Open your *My Computer* icon group.
2. Open the *Control Panel.*
3. Select *Add New Hardware.*
4. Click on *Next.*
5. You will be asked *Do you want Windows to search for your new hardware?*

Select *No*.
Click on *Next*.

6. The *Add New Hardware Wizard* dialog box will appear.

   Highlight *Ports* (COM & LPT).
   Click on *Next*.

7. A second *Add New Hardware Wizard* dialog box will appear.

   Highlight *[Standard Port Types]* and *Communications Port*.
   Click on *Next*.

8. Another *Add New Hardware Wizard* dialog box will appear showing the resource type and setting.

   Click on *Next*.

9. Click on *Finish*.

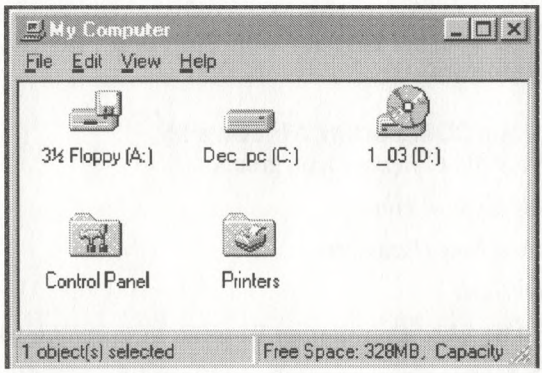
10. A *System Settings Change* dialog box will appear.

    You are asked *Do you want to shut down your computer now?*
    Select *Yes*.

    A message then appears saying *It's now safe to turn off your computer.*

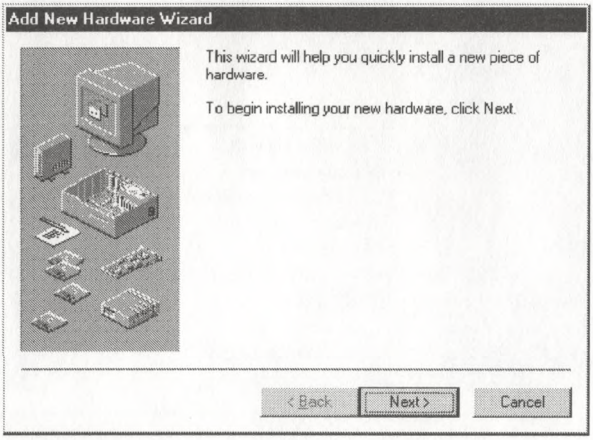
Setting Windows 95 for your Modem

❑ Open your *My Computer* icon group.



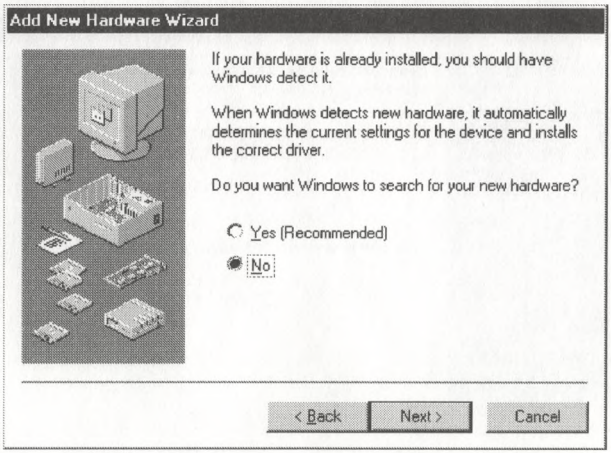
❑ Open the *Control Panel*.

❑ Select *Add New Hardware*:



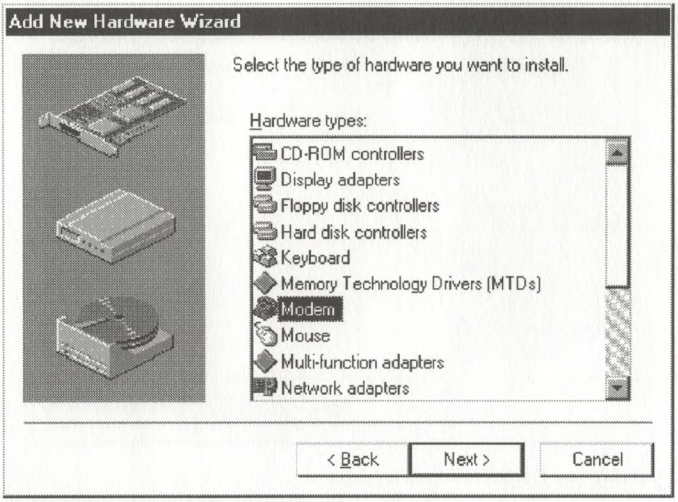
❑ Click on *Next*.

You will be asked *Do you want Windows to search for your new hardware?*



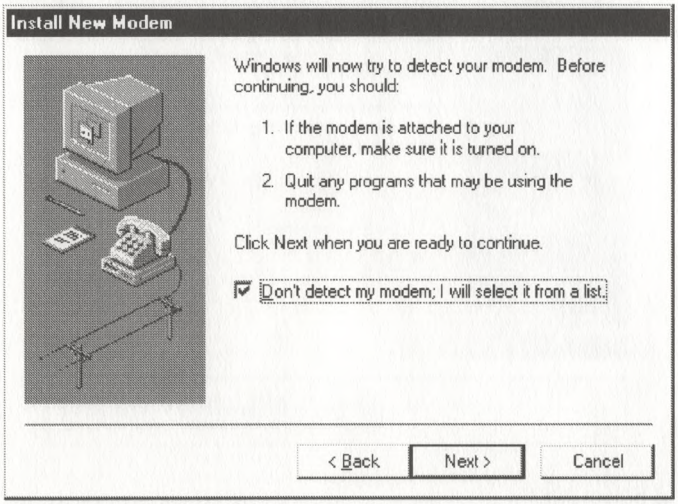
❑ Select *No*.

❑ Click on *Next*.



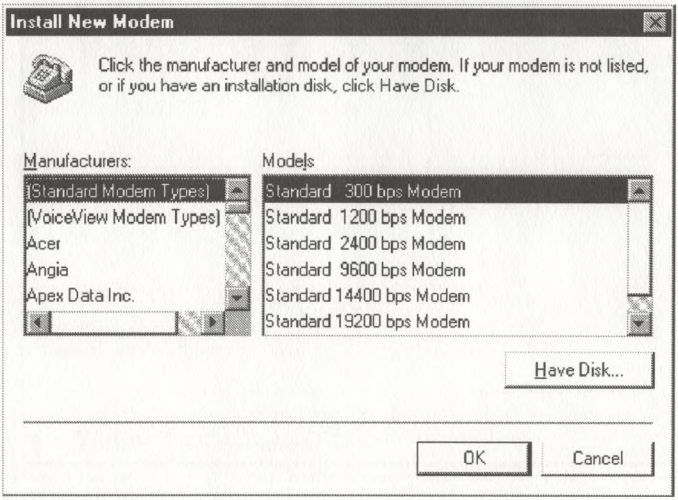
❑ Choose *Modem* under hardware types.

❑ Click on *Next*:



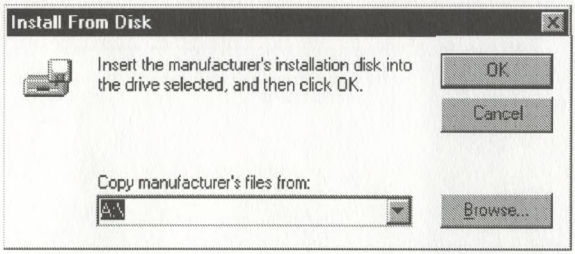
❑ Select *Don't detect my modem, I will select it from a list.*

❑ Click on *Next.*

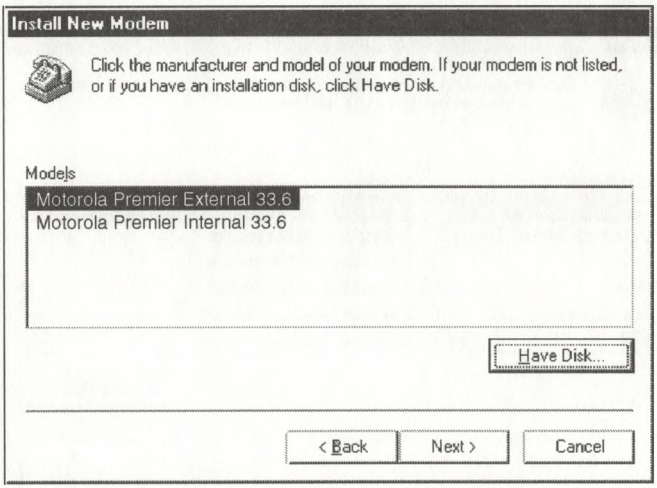


❑ Click on *Have Disk.*

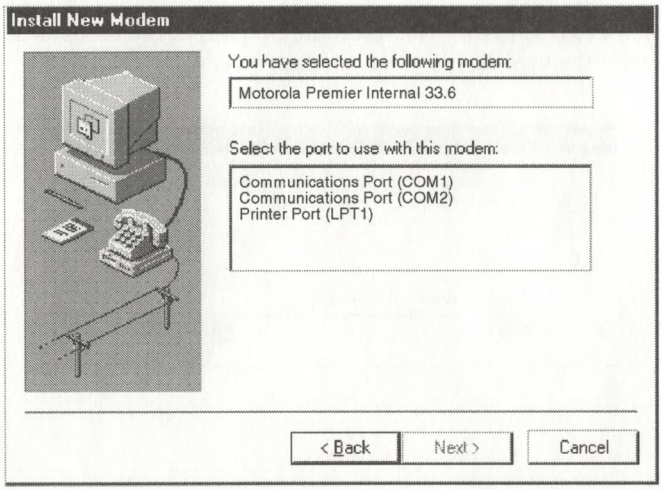
❑ When asked to insert disk, insert the QuickLink II communications software disk and select the appropriate drive, a:\ or b:\.



❑ Select OK:

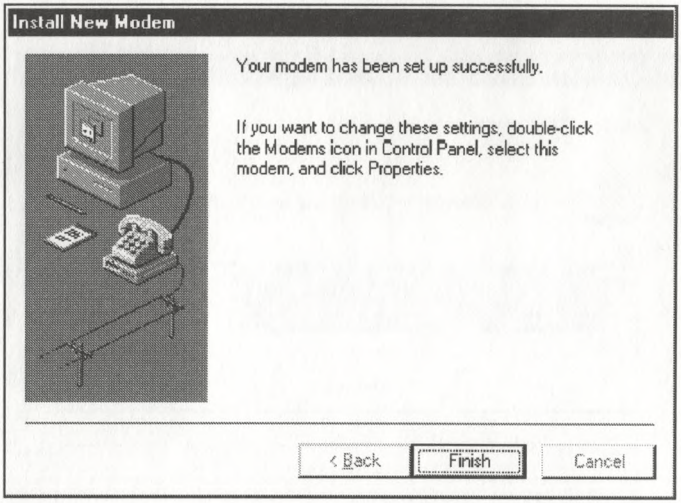


❑ Choose *Motorola Premier External 33.6* or *Motorola Premier Internal 33.6* as appropriate.
❑ Click on *Next.*



❑ Select the appropriate COM port.

❑ Click on *Next*.



❑ Select *Finish*.

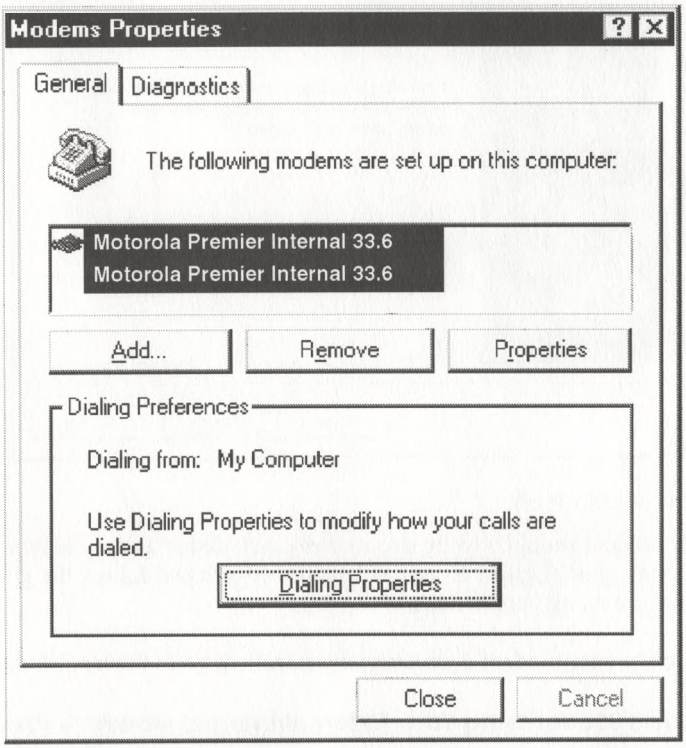
Your modem should now be successfully installed and ready to go! You can go to QuickLink II or your selected software and follow the guidelines for making connections.

To verify your modem is successfully installed, go to the next section.

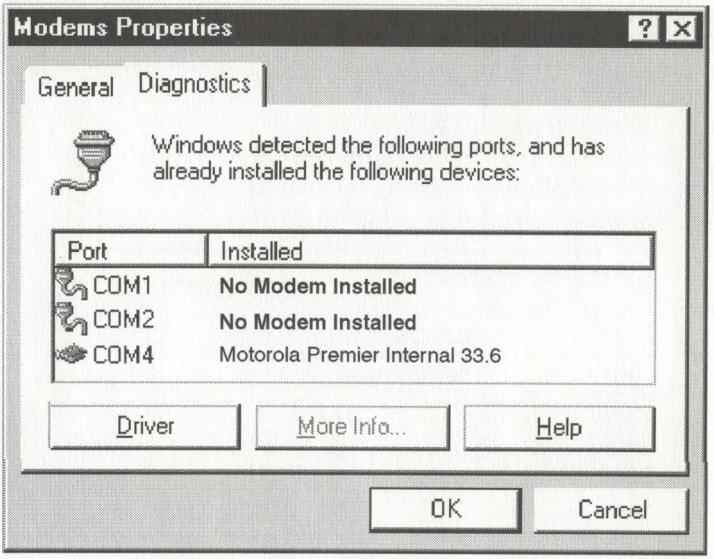
Windows 95: Verifying Your External/Internal Modem's Presence

Go to your *Control Panel* and select *Modems*:

You should see Motorola Premier External/Internal 33.6 listed:



To verify that the modem is working, select the *Diagnostics* option:

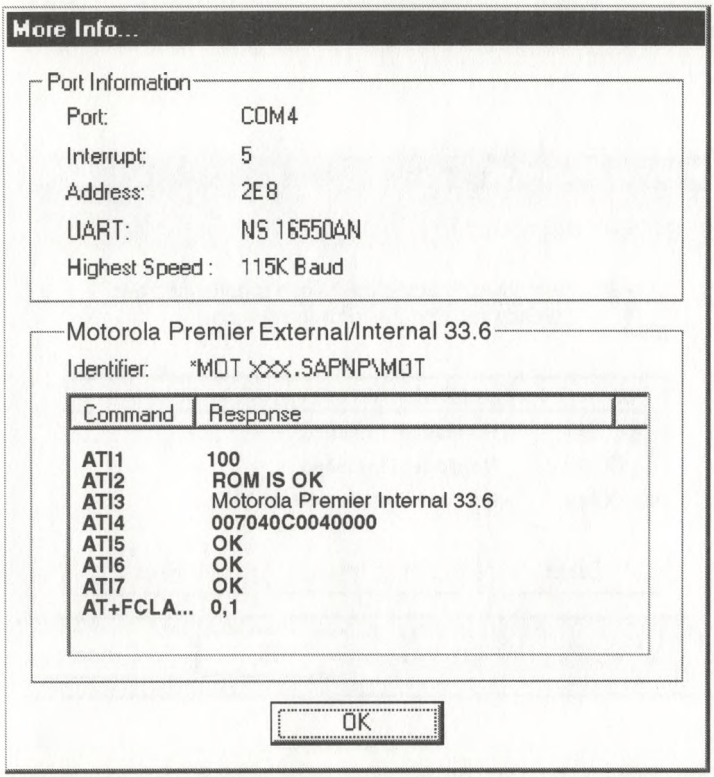


Highlight the COM Port icon to which you've attached the Motorola Premier External/Internal 33.6.

Next, select the *More Info* button.

☞ **Note**
Windows 95 will inform you that this will take a moment as it communicates with the modem.

You should see the *More Info* dialog screen:



You now should see responses to all ATI commands, which verify that the modem is operational. Choose *Close* to leave this dialog.

This process proves your modem is now operational in Windows 95! You are now ready to install your communications software according to the documentation provided with it.

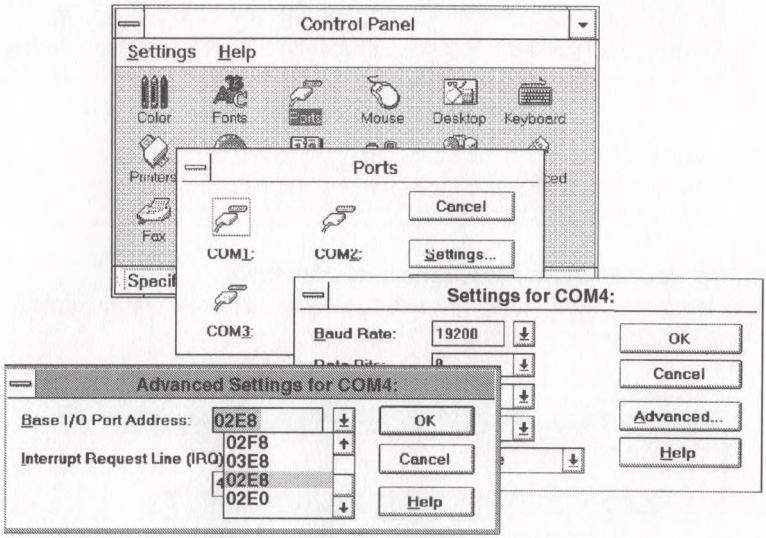
PC USERS: IF YOU'RE RUNNING ANOTHER VERSION OF WINDOWS

1. Turn on your computer and your modem if it's an external modem.

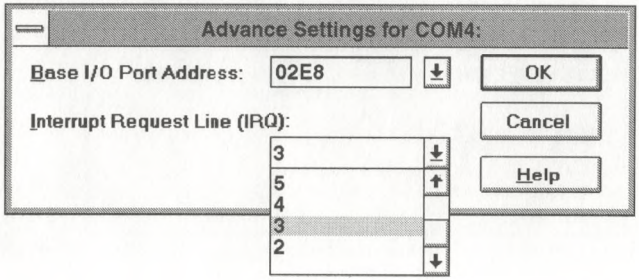
2. If you are not using one of the following combinations, you must change your settings in Windows:

   COM 1, IRQ 4 (3F8) COM 2, IRQ 3 (2F8)
   COM 3, IRQ 4 (3E8) COM 4, IRQ 3 (2E8)

   Go to *Program Manager.* Select your *Main* group, *Control Panel, Ports.* Select your *COM Port* and then select *Settings, Advanced.* Set your IRQ. Windows may prompt you to restart Windows for the changes to take place.



Select your IRQs here:



3. Select your modem's flow control setting -- RTS/CTS for hardware flow control (recommended) or XON/XOFF for software flow control.

4. Install your communications software (see your software documentation).

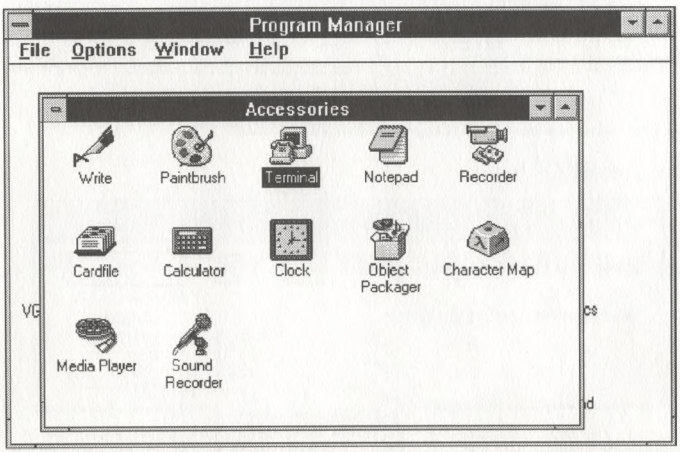
5. Start up your communications software program.

6. Set the software's serial port (baud) rate based on your UART type. This rate is your computer-to-modem speed. Set to 115.2 or 57.6 kbps if you have 16550 UART, 38400 bps if you have a 16450 UART, and 19200 if you have an 8250 UART. The internal modem provides its own 16550 UART.

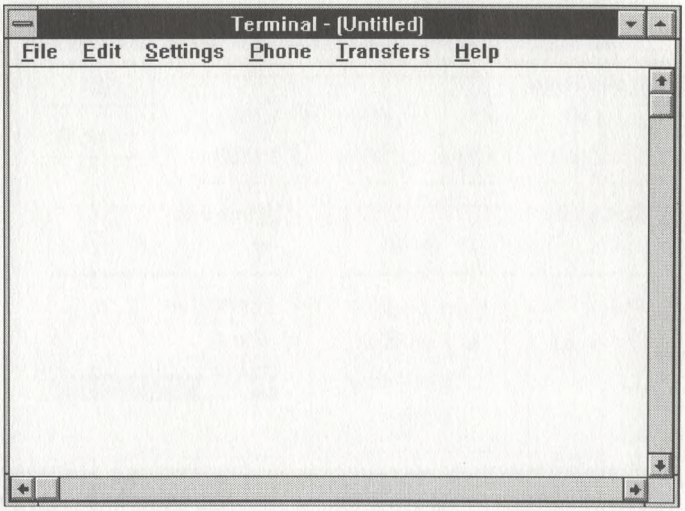
☞ **Note**
If working in DOS, use the communications software to select the COM port and IRQ.

Testing Your Modem Installation in Windows

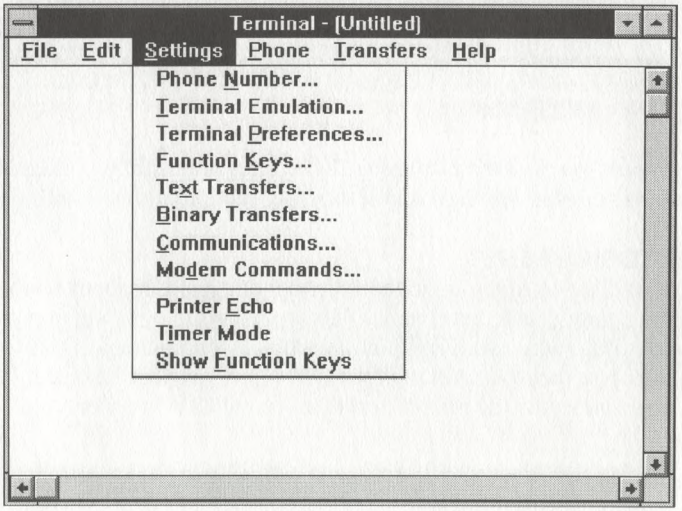
Use *Windows' Terminal* program to see if you can "talk" to the modem: Go to the *Accessories* group in Windows:



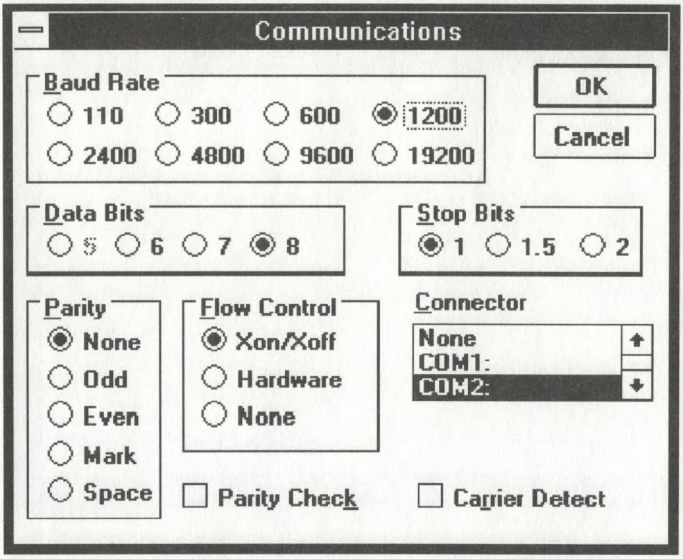
Select *Terminal:*



Select the *Settings* menu:



Select *Communications*:



1. Set the *Baud Rate* (speed) and the *Connector* (COM port).

2. Exit *Communications* and try typing a few modem commands.

3. Type **AT&F<Enter>**.

You should get an OK response. If OK does not display or double characters appear, see the Troubleshooting section of this User's Guide.

MACINTOSH USERS

On most desktop Macs, an icon of a telephone handset appears when you open your data/fax software. This represents the modem port on the back of your Mac. So COM port selection is automatic -- If you've hooked up to the modem port, your COM port has been selected. You can also connect to the printer port (the second COM port on your Mac).

INITIALIZATION STRINGS

With over 150 AT commands and more than 70 S-registers, taking on a modem installation can seem quite intimidating. Fortunately, the average user needs to know less than a dozen commands, if even that many, to get online.

The modem's factory defaults are sufficient for most data communications and fax packages. If you need to enter an initialization or setup string, type

AT&F<Enter> at the appropriate prompt in your software program.

The AT&F command configures the modem to the following settings. If you're not sure if all settings are compatible with your software, check your software manual. You may need to change one of these options.

Command	*Description*
E1	Echo "AT" commands
V1	Verbose (or word) response messages
S0=0	Autoanswer disabled
X4	Full dial progress detection
&D2	Dropping DTR drops the connection
&C1	DCD normal - on only when the modem is connected to another modem
\Q3	Modem uses RTS/CTS (hardware) flow control
\N3	Modem connects with error correction

TIPS TO GET YOU ONLINE QUICKLY

If your Motorola modem is not listed, select *Generic* or *Other Modem* and enter this initialization string:

AT&F&C1&D2S0=0

However, if you are unsure or have problems communicating, call your software vendor. Let the vendor know what model of modem you have AND that you know the "AT" commands for setting error-correction and flow-control (see below). This helps your vendor get you a faster and more accurate answer. While you're talking to the vendor, ask how

to set the flow control settings in the software. Sometimes it may be necessary for you to change your flow control setting, and you will need to know where to set this up in the software.

☞ **Note**
After making any changes to your modem setup, we recommend rebooting your PC or at least exiting the software and restarting it.

Additional Quick Commands

With the following commands, you should have enough information to get your software to work with your modem:

Flow Control Settings
\Q0 Disable flow control
\Q1 XON\XOFF flow control--software flow control
\Q2 CTS flow control--RTS is ignored
\Q3 RTS/CTS flow control--hardware flow control (default)

Connect Response Messages
\V0 Computer-to-modem speed only--This is the best selection for most software (default).
\V1 Computer-to-modem speed with error-correction and data compression information

Data Compression
%C0 Disables data compression
%C1 Enables data compression (default)

Error Correction
\N0 Normal mode
\N1 Direct mode
\N2 MNP reliable mode
\N3 LAPM, MNP or normal mode
\N4 LAPM or MNP mode

☞ **Note**
If you use fax software not provided with the package, make sure it supports Class 1 fax operation.

SETTING UP FOR UNIX

The factory defaults are typically sufficient for PPP or SLIP operation, but you may need to make some changes for UUCP operation. Usually, UUCP operates best when:

- the modem's error-correction and flow control are disabled (\N and \Q, respectfully),
- result messages are set for "originate only" (Q2),
- character echo is disabled (E),
- DSR is set for normal (&S1), and
- the escape sequence is disabled (S2=128)

-- So that you'll need to enter these commands in this form:

AT&F \N \Q Q2 E &S1 S2=128<Enter>

Keep in mind also that for most UNIX systems you may need to double the backslashes for the commands:

AT&F \\N \\Q Q2 E &S1 S2=128<Enter>

For some versions of AT&T UNIX, DCD "wink" is also necessary:

AT&F \N \Q Q2 E &S1 S2=128 &C2<Enter>

For some versions of Sun UNIX, response messages should be in number codes AND you need to disable "connect speed" messages completely:

AT&F \N \Q Q2 E &S1 S2=128 V X

If you have any problems, go to the Troubleshooting section.

Using AT Commands

You probably will prefer using your communications software to select options, rather than entering AT commands. If you do choose to key-in the commands, go to your terminal emulator within your communications software or *Windows Terminal* for command entry.

Entering an AT Command AT

Use these steps to enter an AT command:

- Type AT. This is the Attention Code telling the modem a command follows. The attention code (AT) may be upper or lower case.
- Type the command.
- Press the enter/return key to enter or send the command to the modem (except the *A/* and +++ commands).

For example,
ATI3 <Enter>

Repeating a Command A/

The *A/* command tells the computer to repeat the last command you entered.

☞ **Note**
Do not type AT before this command because AT empties the command buffer. Do not press the return key after entering A/.

DIALING D

To send data to another modem
Enter ATD *and the phone number*

For example,
To dial the number 555-1212
Enter ATD 555-1212

The entire string can be up to 80 characters long, excluding the AT command prefix.

Your modem comes set for tone dialing. You can store pulse dialing in memory if needed by using the &W commands.

Also, these examples are all treated the same:

AT D 1-800-555-1212
AT D 1 (800) 555-1212
ATD18005551212

Of course you can use numbers 0 through 9 in all dial strings. You can also use spaces, hyphens, parentheses, or any other punctuation except the dial modifiers (below) to make the command line easier for you to read. All characters do count against your 80-character buffer; spaces do not. The # and * signs operate only with tone dialing.

Dial Modifiers

Command	Description
T	Tone dialing *
P	Pulse dialing
, (comma)	Pause for the number of seconds defined by register S8
W	Wait for 2nd dial tone
!	Switch hook command - go on hook for 1/2 sec
R	Switch to answer mode after dialing †
@	Wait for 5 seconds of silence
;	Return to command mode after dialing
Sn	Dial stored number n

** default*
† does not apply to fax operations

Tone or Pulse Dialing T or P

To tone or pulse dial a number sequence, insert a *T* or *P* in the dial command. The modem comes set for tone dialing (and you only need to enter a *T* in the dial string if you have used *P* in the last dial string).

For example,
AT D *T (or P)* 323-1111

Pause ,

Including a pause command in the dial string inserts either a 2 second pause or the value in status register S8 in the dialing sequence. If S8 is set to 0, a value of 1 second is forced when using the pause modifier in a dial string.

For example,

AT D P 9, 1-800-555-1000

Wait for Second Dial Tone W

The W command makes the modem pause and listen for a second dial tone before continuing the dial command.

A T D 9 W 323-8000

You can use the pause and wait for second dial tone commands when using long distance services.

Call Transfer or Other On Hook Feature !

If you want to transfer a call or do something similar that requires going on hook or a "flash-hook", enter an exclamation mark.

A T D T 9, 323-8000!,#7377

Wait for Silence @

Use the @ modifier for special services like automatic paging. The @ tells the modem to wait for one or more rings and then to listen for 5 seconds of continuous silence before dialing. If 5 seconds of silence is not detected within the time set in register S7, the modem hangs up.

Switching to Answer Mode after Dialing * R

To switch to answer mode after dialing, use an *R* at the end of the dial sequence.

AT D 555-2345 R

Use this modifier to call a modem that is only set to originate calls. Do not use the *R* and *;* commands in the same dial string.

** Does not apply to fax operation*

Returning to Command Mode ;

The *;* modifier forces the modem to return to command mode after executing a dial command.

This command is especially useful if you are doing several things in one call. Use it when a modem is not required on the other end and you need to return to command mode to perform the next step (like telephone ordering services, bank-by-phone, and other situations where a push-button phone is used to enter data). When you finish, enter *ATH* to hang up the phone.

STORING TELEPHONE NUMBERS &Zn=d

Your communications software provides a "phone book" for comparable telephone number storage if you would prefer to access this option through software rather than command entry.

Use the *&Zn=d* command to store up to 9 31 character telephone numbers including any dial modifiers that you may need:

AT&Zn=d where n = locations 1-9
d = the telephone number and any of the dial modifiers T P R W @ ; !
(*,# are ignored when pulse dialing.)

For example, to store the dial sequence T9,15551212R at location 2 enter

AT&Z2=T9,15551212R

Displaying Stored Numbers *ND

*AT*ND* displays the phone numbers that you've stored in locations 1-9.

Dialing Stored Numbers Sn

ATDSn dials the phone number stored at location *n* where *n*=1-9.

ANSWERING A CALL

Manually A

If you connect the modem to a telephone line that is also for your phone, you probably don't want it to answer every time the phone rings. The factory default sets the modem to only answer a call when you enter

ATA

You can tell that the modem is receiving a ring signal if:

- A telephone is connected to the same line as the modem, and it rings.
- The modem sends a RING message to the computer.

Autoanswering S0=n

If you have separate telephone lines for the modem and your telephone, the modem can automatically answer incoming calls. The default is for the modem not to answer unless you manually enter the ATA command. If you prefer, you can have the modem answer after any number of rings, from 1 up to 255. To specify the number of rings that the modem answers on, enter *ATS0=n* where *n* is the number of rings on which the modem answers. Setting S0 to 0 (the default) disables autoanswer.

HANGING UP OR GOING OFF HOOK H

The *H* command ends a call, telling the modem to hang up.

SELECTING RESPONSE MESSAGES V AND \VN

The *V* commands tell the modem to show response messages as words or numbers. A list of response messages in both numbers and words appears on the next page. The *V* command enables number response messages. The modem's default is *V1*, which provides word responses.

The modem can tell you if you're connecting using error correction and data compression if you enter one of the \V commands:

Command	Description
\V	Computer-to-modem speed only *(default)*
\V1	Computer-to-modem speed with error-correction and data compression information
\V2	Modem-to-modem speed only
\V3	Modem-to-modem speed with error-correction and data compression information
\V4	Modem-to-modem speed with modulation, error-correction, and data compression information

For example:
Your computer-to-modem speed is 115200 bps. The modem connects in V.34 bis mode. V.42 bis data compression is used:

Command	*Connect Message (Example)*
\V	CONNECT 115200
\V1	CONNECT 115200/V42BIS
\V2	CONNECT 33600
\V3	CONNECT 33600/V42BIS
\V4	CONNECT 33600/V34/V42BIS

Response Messages

Code	Message	Meaning
0	OK	Command received
1	CONNECT	Connect at 300 bps while X1, X2, X3, or X4 command in effect; all rates while X command in effect
2	RING	Ring detected
3	NO CARRIER	Valid carrier not detected within period specified by register S7, or carrier lost for value of S10 or more
4	ERROR	Command not recognized or too long
5	CONNECT 1200	Connection made at 1200 bps
6	NO DIALTONE	No dial tone for 10 sec (X2 or X4 command in effect)
7	BUSY	Dialed number busy (X3 or X4 command in effect)
10	CONNECT 2400	Connection made at 2400 bps
11	CONNECT 4800	Connection made at 4800 bps
12	CONNECT 9600	Connection made at 9600 bps

Note: *For CONNECT messages, the indicated speed is the modem-to-computer speed unless the \V2, \V3, or \V4 command has been issued.*

Response Message Numeric Codes for Speed and Protocol Selection

Speed	No Protocol	MNP 2-4	MNP 5	V.42	V.42 bis
300	1, 20	104	82	60	38
1200	5	106	84	62	40
2400	10	107	85	63	41
4800	11	108	86	64	42
7200	22	109	87	65	43
9600	12	110	88	66	44
12000	23	111	89	67	45
14400	24	112	90	68	46
19200	26	114	92	70	48
38400	34	122	100	78	56
57600	35	123	101	79	57
115200	36	124	102	80	58

SENDING FAXES

You'll send faxes by using your fax software. The commands explained below are issued automatically by the fax software and not by you. They are only listed here for reference. If you are having problems sending or receiving a fax, refer to your fax software manual for further information.

Note

Some fax software packages require software flow control. The modem uses hardware flow control as the factory default. You may need to enable software flow control (AT\Q1) to send and receive faxes.

Checking Data or Fax Status +FCLASS?

This command identifies if the modem is set for data or fax operation (0 returns for data mode, 1 for fax).

Service Class Capabilities +FCLASS=?

The *+FCLASS=?* command displays the Fax Service Classes supported. The modem responds with the information text 0, 1 indicating that the modem supports both data communications and Class 1 fax operation.

SECURITY

All security commands are listed in the AT Command Summary section. Your security feature is AT command specific; you cannot set or control security using your software package.

Note

The modem cannot send or receive faxes with security enabled.

How to Turn on Security

To turn on security, send this command to the modem:

AT$EH=SUPERUSER

Everything after the equal sign is the "superuser" (or systems administrator) password, which is SUPERUSER when the modem is shipped. The superuser password always must be in upper case.

How to Add Secure Users

The modem always has 1 secure user--you. But you can add up to a total of 20 secure users, each with a different password and security level.

After you have turned on security, follow these steps to add secure users:

1. Enter AT$1=USER1 to log on as user 1. Everything after the equal sign is user 1's password, which is USER1 when the modem is shipped.

2. Enter AT$S=SUPERUSER to become the superuser. Everything after the equal sign is the superuser password, which is SUPERUSER when the modem is shipped.

Caution

The modem does not display passwords. If you forget the password you've entered for superuser status, you cannot enter AT commands to change modem options. The modem must be returned to the factory to be reinitialized.

3. Enter AT$Pn=pw$pw to add user n and assign that user's password (pw). Each user is assigned security level 1 initially. The next section tells how the modem responds to calls at each security level.

4. Enter AT$Ln=m to set user n's security level to level m.

5. If you want or need to, repeat steps 3 and 4 to add as many secure users as you want, up to 20.

6. For each user that you assign a security level of 2 or 3, you need to enter a telephone number that your modem dials on a callback to reach that user's modem. Do this by issuing the command AT$Cn=m, where n is the user number and m is the telephone number of that user's modem.

7. Enter AT$$ to leave superuser status. After doing so, you will still be logged on as user 1.

8. Enter AT$$ again to log off.

   The modem is now secure. Users calling into your modem must complete a logon sequence determined by the security level you have indicated. These levels are described in the next section.

9. Confirm you are logged off from security for the modem to function.

How Users Connect to a Secure Modem

Users calling into a secure modem do not need to have security enabled at their location, nor do they need to use another Premier to be able to connect. The connection process differs depending on the user's security level.

Follow these steps to connect to a secure modem.

1. Place a modem call to the secure modem. Shortly after your modem shows that it is connected, you receive this password prompt:

   PLEASE ENTER YOUR PASSWORD ===>>

2. Type **$**n=pw and press Enter to log on as user n with password pw. The n(umber) just after the dollar sign specifies which user is trying to log on--1 through 20--and the pw represents the password for that user.

3. If the user has a security level of 1, then when the password is validated

   a. The modem sends you this message to let you know it is completing the connection with the remote computer:

PASSWORD ACCEPTED ==>> WAIT FOR SECURE CONNECTION

   b. When the connection is made with the remote computer, you receive this message telling you that you can exchange data with the remote computer:

      CONNECTION SECURE

   A secure connection is now established. If both modems are set at security level 1, you can skip the remaining steps and transmit or receive data.

4. If the user has a security level of 2 or 3, then when the password is validated

   a. The modem sends you this message to tell you that it will call you back:

      PASSWORD ACCEPTED ===>> WAIT FOR CALLBACK

   b. The modem then calls you at your callback number.

5. If the user has a security level of 2, when the callback connection is made the modem acts as described in steps 3a and b for a level-1 user that has entered the correct password.

6. If the user has a security level of 3, when the callback connection is made the modem sends you the prompt described in step 1 and continues as described in steps 2 and 3 for a level-1 user.

REMOTE CONFIGURATION

☞ **Note**
Remote configuration applies only to Motorola modems.

Enabling and Disabling Remote Configuration *RA

Enter the AT*RA1 command to the modem to allow the modem to be remotely configured.

To disable remote configuration, enter the AT*RA command (the default), or set the modem's Remote Escape Character, explained below, to a value greater than 127.

Establishing a Remote Configuration Session

To establish a remote configuration session, the feature must be enabled in the remote Premier. Follow these steps to initiate a remote configuration session with a remote Premier modem.

☞ **Note**
Although not required, Motorola strongly suggests using V.42 bis or MNP error correction protocol for your connection.

1. Establish a connection with the remote Premier modem.

2. Enter the Remote Escape Code: Type the equal "=" sign five times, allowing for the delay set by register S42 before and after the sequence. The time between characters cannot exceed the time specified by S42.

☞ **Note**
When issuing the remote configuration escape sequence and password, your computer must be set up for the same character size and parity as the answering modem.

3. When the remote unit returns the PASSWORD: prompt, enter the remote modem's password followed by the remote modem's end-of-line character (as defined by register S3).

4. If the password is correct, the remote modem returns an RC ESTABLISHED message followed by an OK message. Subsequent AT commands are processed by the remote modem. If the password is incorrect or is not detected within 15 seconds, the remote modem sends an ERROR message and returns to data mode.

When the remote configuration session is established, the remote modem makes a working copy of its active profile. Changes to modem configuration during the session only affect this working copy. This allows you to abort the session and discard the changes. Changes to phone numbers, security passwords, and the remote configuration password occur immediately and cannot be discarded by aborting the session.

You can use most AT commands while configuring the Premier remotely, except for these: A, D, H, H1, On, \B0, &Tn, *RRn, and %T

2-WIRE LEASED LINE OPERATION *

"Leased line" is a dedicated point-to-point type of line that is set up by your telephone company through special order. (The Premier does two-wire leased line only.) Leased or private line operation connects the local and remote modems directly, and dialing is not necessary. When using leased line operation, the two modems connect automatically and immediately begin communicating with each other. One modem must be set for forced answer and the other for normal originate in leased line mode. Both modems must be set for the same protocol, MNP or LAPM, and protocol fallback must be disabled. Both modems must be set for the same modem-to-modem speed.

Selecting Dial or Leased Line Operation

The &L commands select whether the Premier is set for regular public "dial" lines, or private leased lines. Entering AT&L selects dial lines, and entering AT&L1 selects leased lines.

Selecting Leased Line Originate or Answer Mode

The *OR commands let you choose which modem is set to originate the call and which modem answers the call. Entering AT*OR selects originate mode, and entering AT*OR1 selects answer mode.

* *Does not apply to internal modem*

AT Command Summary

Note

Further information on the AT command set is available through our faxback system or through the Web (see the Service and Support Numbers page at the back of the manual).

Command	Description
AT	Attention code - command prefix
A/	Repeat last command
+ + +	Escape sequence (pause, + + +, pause)
A	Answer ‡
D	Dial ‡
T	Tone dial †
P	Pulse dial
,	Long pause (S8 value)
W	Wait for 2nd dial tone (S7 value)
!	Flash switchhook
R	Switch to answer mode after dialing
@	Wait for 5 seconds of silence
;	Return to command mode after dialing
Sn	Dial stored command line
E	Local character echo off
E1	Local character echo on †
H	Hang up ‡
H1	Forces modem off hook ‡
H2	Set H command to allow cleardown †
H3	Set H command to disallow cleardown
I	Request product code
I1	Request EPROM CRC value
I3	Request product version
I4	Request capability code
I5	Disconnect reason

† *factory default*

‡ *cannot be executed from remote configuration mode*

Command	Description
L or L1	Speaker volume low
L2	Speaker volume medium †
L3	Speaker volume high
M	Speaker off
M1	Speaker off when carrier is present †
M3	Speaker off when dialing and carrier is present
O	Restore data mode (after escape) ‡
O1	Retrain and restores data mode (after escape) ‡
Q	Response displays on †
Q1	Response displays off
Q2	Response displays on in originate mode only
Sn?	Read value in register *n* (decimal)
Sn?^	Read value in register *n* (hexadecimal)
Sn=v	Set *v* (value) in register *n* (decimal)
Sn=^v	Set *v* (value) in register *n* (hexadecimal)
V	Response codes
V1	Response messages †
X	CONNECT (code 1), for all speeds, no dial tone or busy signal detection
X1	Appropriate connect codes for rate, no dial tone detection
X2	Wait for dial tone (appropriate connect codes)
X3	Detect busy signal (appropriate connect codes)
X4	Wait for dial tone, detect busy signal † (appropriate connect codes)
Y	Long space disconnect disabled
Y1	Long space disconnect enabled †
Z	Reset to user option set #1
Z1	Reset to user option set #2
&C	DCD always on
&C1	DCD on while carrier is present †
&C2	DCD off 5 seconds after disconnect
&C3	DCD follows remote RTS
&D	DTR ignored
&D1	DTR recalls command mode
&D2	DTR disconnects †
&D3	DTR disconnects/resets modem to stored configuration
&D9	DTR dials/disconnects

† *factory default*
‡ *cannot be executed from remote configuration mode*

Command	Description
&F or &F1	Restore factory configuration
&G	No guard tone †
&G1	550 Hz tone
&G2	1800 Hz tone
&L	Dial line †
&L1	Leased line 2-wire **
&M	Asynchronous dial/asynchronous data † **
&M1	Asynchronous dial/synchronous data **
&M2	Dials stored number when DTR off / on transition is detected/sync data **
&M3	Manual dial/sync data **
&M4	V.25 bis dialer/BISYNC protocol/sync data (ASCII) **
&M5	V.25 bis dialer/SDLC protocol/sync data (NRZ) **
&M6	V.25 bis async dial/sync data **
&M7	V.25 bis async dial/async data **
&M8	V.25 bis dialer w/BISYNC protocol/sync data (EBCDIC) **
&M9	V.25 bis dialer w/SDLC protocol/sync data (EBCDIC) (NRZ) **
&M10	V.25 bis dialer w/SDLC protocol/sync data (ASCII) (NRZI) **
&M11	V.25 bis dialer w/SDLC protocol/sync data (EBCDIC) (NRZI) **
&P	39/61 pulse make/break ratio †
&P1	33/67 pulse make/break ratio
&R	CTS normal operating state
&R1	CTS forced on †
&R2	CTS follows DCD
&R9	CTS equals RTS
&S	DSR always on †
&S1	DSR on when ready to accept data
&S2	DSR off for 5 seconds after disconnect
&S3	DSR follows off hook (OH)
&T	Terminate current test ‡
&T1	Initiate analog loopback ‡
&T3	Initiate digital loopback ‡
&T4	Grant remote commanded digital loopback † ‡
&T5	Denies remote commanded digital loopback ‡
&T6	Initiate remote digital loopback ‡

† *factory default*
‡ *cannot be executed from remote configuration mode*
** *does not apply to internal modem*

Command	Description
&T7	Initiate self test remote digital loopback ‡
&T8	Initiate self test analog loopback ‡
&V	View configuration profiles
&V1	Display received signal status
&V2	Display active profile
&W	Store current configuration to user option set #1
&W1	Store current configuration to user option set #2
&X	Internal clock † **
&X1	External clock **
&X2	Receive clock **
&Y	Powerup with user option set #1 †
&Y1	Powerup with user option set #2
&Y?	Display powerup option set
&Zn=d	Store dial string *d* in location *n*
%A	Disable auto-reliable fallback character †
%An	Set auto-reliable fallback character to *n* (*n* = ASCII 1-127)
%B	Use computer speed
%B1	300 bps max
%B2	1200 bps max
%B3	2400 bps max
%B4	4800 bps max
%B5	9600 bps uncoded max
%B6	9600 bps max
%B7	7200 bps max
%B8	12000 bps max
%B9	14400 bps max
%B10	600 bps max
%B11	16800 bps max
%B12	19200 bps max
%B13	21600 bps max
%B14	24000 bps max
%B15	26400 bps max
%B16	28800 bps max
%B17	31200 bps max
%B18	33600 bps max †

† *factory default*
‡ *cannot be executed from remote configuration mode*
** *does not apply to internal modem*

Command	Description
%C	Compression disabled
%C1	Compression enabled on transmit and receive data †
%D	Disable disconnect buffer delay †
%Dn	Set disconnect buffer delay in seconds *n* (*n* = 1-255)
%L	300 bps min †
%L1	300 bps min
%L2	1200 bps min
%L3	2400 bps min
%L4	4800 bps min
%L5	9600 bps uncoded min
%L6	9600 bps min
%L7	7200 bps min
%L8	12000 bps min
%L9	14400 bps min
%L10	600 bps min
%L11	16800 bps min
%L12	19200 bps min
%L13	21600 bps min
%L14	24000 bps min
%L15	26400 bps min
%L16	28800 bps min
%L17	31200 bps min
%L18	33600 bps min
%P=	Set remote configuration code (8 digits max, = same as =0)
%P?	Display remote configuration code
%P1=D	Disable soft download
%P1?	Display soft download password
%P1=	Set soft download password (8 digits)
%R	Disable automatic rate adaption †
%R1	Enable automatic rate adaption low BER
%R2	Enable automatic rate adaption medium BER
%R3	Enable automatic rate adaption using high BER
%T	Transmit test pattern
%V	Display product revision level
\A	Maximum block size of 64 characters
\A1	Maximum block size of 128 characters
\A2	Maximum block size of 192 characters
\A3	Maximum block size of 256 characters †

† *factory default*
‡ *cannot be executed from remote configuration mode*

Command	Description
\B	Transmit a break signal †
\Bn	Set break length in 20 ms increments, *n*=1-255, default=35 (700 ms)
\C	Disable auto-reliable buffer †
\C1	Buffer data for 4 seconds or 200 characters
\G	Disable modem port flow control †
\G1	Enable modem port XON/XOFF flow control
\J	Disable slaved computer/modem speed (constant computer speed on) †
\J1	Enable slaved computer/modem speed (constant computer speed off)
\J2	Enable 230.4 kbps computer/modem speed **
\J3	Disable 230.4 kbps computer/modem speed **

Note

The 230.4 kbps computer/modem speed is available, but the computer will not autobaud to 230.4 kbps. You must enter AT\J2 to enable the speed and enter AT\J3 to disable it.

\K1	Break signals empty data buffers
\K3	Expedite break signals
\K5	Sequence break signal with data
\M	V.42 fast detect data sequence disabled
\M1	V.42 fast detect data sequence enabled †

Note

With V.42 Fast Detect enabled, the modem may not connect in V.42 with some modems that do not support V.42 Fast Detect. If this happens, try disabling V.42 Fast Detect (\M) and calling the other modem again.

† factory default

*** does not apply to internal modem*

Command	Description
\N	Normal mode (buffered)
\N1	Direct mode (nonbuffered)
\N2	MNP only
\N3	MNP with normal fallback
\N4	LAPM only
\N5	LAPM with normal fallback
\N6	LAPM with MNP fallback
\N7	LAPM with MNP and normal fallback †
\Q	Disable computer flow control
\Q1	Enable computer XON/XOFF flow control
\Q2	Enable CTS flow control to the computer
\Q3	Enables bilateral CTS/RTS flow control †
\R	Ring indicate, blinks for ring and remains during call
\R1	Ring indicate, blinks for ring, off when call answered †
\T	Disable inactivity timer †
\Tn	Set inactivity timer to *n* (*n* = 1-255 minutes)
\V	Connect message shows computer speed †
\V1	Connect message shows computer speed/protocol
\V2	Connect message shows modem speed
\V3	Connect message shows modem speed/protocol
\V4	Connect message shows modem speed/modulation/protocol
\X	No XON/XOFF characters to remote modem †
\X1	Pass XON/XOFF characters to remote modem
*AS	Disable V.34 asymmetric bit rate
*AS1	Enable V.34 asymmetric bit rate †
*DG	Disables bilateral digital loop †
*DG1	Enables bilateral digital loop
*DN	Allow redial with A/ †
*DN1	Disallow redial with A/
*DR	Disable distinctive ring detection †
*DR1	Enable distinctive ring detection
*FT	Disable fast train †
*FT1	Enable fast train
*ID	Disable caller ID †
*ID1	Enable caller ID

† *factory default*
‡ *cannot be executed from remote configuration mode*

Command	Description
*MM	Automode (modulation) †
*MM1	V.21
*MM2	Bell 103J
*MM3	V.23
*MM4	Bell 212A
*MM5	V.22 bis
*MM11	V.32 bis
*MM12	V.34 † ‡
*ND	Displays the nine stored numbers
*NT	AT command set disabled
*NT1	AT command set enabled †
*OR	Originate mode **
*OR1	Answer mode **
*RR	Rate negotiate to 2400 ‡
*RR1	Rate negotiate to 4800 ‡
*RR2	Rate negotiate to 7200 ‡
*RR3	Rate negotiate to 9600 ‡
*RR4	Rate negotiate to 12000 ‡
*RR5	Rate negotiate to 14400 ‡
*RR6	Rate negotiate to 16800 ‡
*RR7	Rate negotiate to 19200 ‡
*RR8	Rate negotiate to 21600 ‡
*RR9	Rate negotiate to 24000 ‡
*RR10	Rate negotiate to 26400 ‡
*RR11	Rate negotiate to 28800 ‡
*RR12	Rate negotiate to 31200 ‡
*RR13	Rate negotiate to 33600 ‡
*RU	Disable auto rate adaption above initial rate **
*RU1	Enable auto rate adaption above initial rate **
*TDn	Sets dial transmit level -9 to -30 dBm
*TH	Low V.34 rate selection threshold (10^{-6} BER)
*TH1	Medium V.34 rate selection threshold (10^{-4} BER)
*TH2	High V.34 rate selection threshold (10^{-2} BER) †
*TLn	Set leased line transmit level to n where n is a number between 0 and 30 corresponding to 0 to -30 dBm ‡ **

† *factory default*
‡ *cannot be executed from remote configuration mode*
** *does not apply to internal modem*

Command	Description
$H	Online help
$H=string	Online help for string
$V	Display product serial number

Fax Commands

+FCLASS=0	Fax class 0, data operation
+FCLASS=1	Fax class 1, fax operation
+FCLASS?	Display current Service Class setting
+FCLASS=?	Display available Service Class settings
+FAA=0	Disables data/fax adaptive answer function †
+FAA=1	Enables data/fax adaptive answer function
*FR	Fax adaptive answer computer autobaud (forced to >=19200)**
*FR1	Fax adaptive answer computer forced to 19200 **
*FR?	Display *FR option status **

† factory default

‡ cannot be executed from remote configuration mode

*** does not apply to internal modem*

Security Commands

$Cn=m	Set user callback number (*n* = user number and *m* = the callback number)
$D	Disable security ‡
$D?	Display security status
$EH=pw	Enable security (*pw* = superuser password) ‡
$F=pw$pw	Reinitialize security ‡
$I	Display all secure user information ‡
$Ln=m	Set security level for the user specified by *n* (*m* = security level)
$M	Display illegal attempts information ‡
$M*	Reset all illegal attempts registers/restore suspended users to normal status ‡
$Mn	Reset illegal attempts registers/restore suspended user *n* to normal status ‡
$n=pw	Local logon (n = user number, pw=password)
$Pn=pw$pw	Set user password; *n* = the user number and *pw* = the new password (*n* = 0 for superuser password)
$Rn	Remove a user (*n* = user number) ‡
$S=pw	Request superuser status (pw = password) ‡
$S?	Display current user status (superuser/user)
$$	Local logoff
$n=m	Local logon (*n* = user number and *m* = password)

† factory default
‡ Only the local superuser can execute this command.

Remote Configuration Commands

Command	Description
%P = n	Set remote configuration security code to value entered after equal sign (0-99999999)
%P?	Display local modem remote configuration security code
%P = (blank)	Clears the security code †
*RA	Disable remote configuration †
*RA1	Enable remote configuration
	Remote configuration computer speed:
*RB	300 bps
*RB1	600 bps
*RB2	1200 bps
*RB3	2400 bps
*RB4	4800 bps
*RB5	7200 bps
*RB6	9600 bps
*RB7	12000 bps
*RB8	14400 bps
*RB9	16800 bps
*RB10	19200 bps
*RB11	21600 bps
*RB12	24000 bps
*RB13	26400 bps
*RB14	28800 bps
*RB15	28400 bps
*RB16	57600 bps
*RB17	115200 bps
	Remote configuration format settings:
*RF	7 data bits, mark parity, 1 stop bit
*RF1	7 data bits, no parity, 2 stop bits
*RF2	7 data bits, odd parity, 1 stop bit
*RF3	7 data bits, even parity, 1 stop bit
*RF4	8 data bits, mark parity, 1 stop bit
*RF5	8 data bits, no parity, 1 stop bit
*RF6	8 data bits, odd parity, 1 stop bit
*RF7	8 data bits, even parity, 1 stop bit
*RQ	Exit remote configuration/save new configuration
*RQ1	Exit remote configuration/discard new configuration

† factory default

STATUS REGISTERS

S-Reg	Function	Range	Default
S0	Ring to autoanswer on	0-255	0
S1†	Ring count	0-127	--
S2	Escape sequence character	0-127	43 (+)
S3	End-of-line character	0-127	13 (CR)
S4	Line feed character	0-127	10 (LF)
S5	Backspace character	0-127	8 (BS)
S6	Pause before blind dialing	0-255	2 (2 sec)
S7	Pause for carrier	0-255	30 (30 sec)
S8	Pause for comma	0-255	2 (2 sec)
S9	Carrier validation	0-255	6 (0.6 sec)
S10	Loss carrier delay time	0-255	14 (1.4sec)
S11	DTMF tone duration	50-255	80 (80 ms)
S12	Escape sequence pause	0-255	50 (1 sec)
S18	Test timer	0-255	0 (sec)
S25	DTR recognition time	0-255	5 (0.05 sec)
S26	RTS/CTS delay	0-255	0
S41	Remote escape character	1-255	61 (=)
S42	Remote guard time	0-255 (20 ms intervals)	50 (1 sec)
S44	Computer XON character	0-127	17
S45	Computer XOFF character	0-127	19
S49	Modem XON character	0-127	17
S50	Modem XOFF character	0-127	19
S73	Password timeout security	0-255	0 (sec)
S74	Callback delay	0-255	15 (15 sec)
S75	Callback retry	0-255	0
S76	Callback retry delay	1-255	15 (15 sec)
S77	Lockout threshold	0-255	0

† Read only

V.25 bis Autodialer (External Modem Only)

V.25 bis allows dialing functions to be controlled using synchronous data. You select V.25 bis through the appropriate *&M* command.

☞ **Note**
The modem must be configured as V.25 SDLC ASCII NRZ for use with an AS400 IBM computer (&M5).

SOFTWARE GUIDELINES

- An indicator enclosed in less than/greater than signs represents a specific character in the appropriate character set, ASCII or EBCDIC.

  <sp> - space

- Each response below is considered an individual message by V.25 bis conventions. For example, a dial command with *intermediate call progress* enabled (BISYNC mode ASCII/EBCDIC character set) is:

From computer	*To computer*
<sy><sy><stx>CRN<sp>(205)555-0124<etx>	<sy><sy><stx>VAL<etb>

- V.25 bis commands can be in one of these data formats:

  ASYNC
  BISYNC
  SDLC NRZ
  SDLC NRZI
  in ASCII or EBCDIC

Access these formats using:

&M Asynchronous dial/asynchronous data
&M1 Asynchronous dial/synchronous data
&M2 Dials stored number when DTR off/on transition is detected/sync data
&M3 Manual dial/sync data
&M4 V.25 bis dialer/BISYNC protocol/sync data (ASCII)
&M5 V.25 bis dialer/SDLC protocol/sync data (NRZ)
&M6 V.25 bis async dial/sync data
&M7 V.25 bis async dial/async data

&M8 V.25 bis dialer w/BISYNC protocol/sync data (EBCDIC)
&M9 V.25 bis dialer w/SDLC protocol/sync data (EBCDIC) (NRZ)
&M10 V.25 bis dialer w/SDLC protocol/sync data (ASCII) (NRZI)
&M11 V.25 bis dialer w/SDLC protocol/sync data (EBCDIC) (NRZI)

- Separator fields depend on the data format.

  for ASYNC {sep} = command <CR>
  BISYNC {sep} = <sy><sy><stx> command <etx>
  SDLC {sep} = <Flags><Addr><ctl> command <FCS>

  where:
  <sy> = 16 hexadecimal
  <stx> = 02 hex
  <etx> = 03 hex
  <etb> = 17 hex
  <Flag> = 7E hex
  <Addr> = FF hex
  <ctl> = 13 hex (last frame), 03 hex (not last frame)
  <FCS> = Frame Check Sequence
  <CR> = Carriage Return

DIAL PARAMETERS

The parameters used in autodialing are listed below. The memory available for dialing can hold up to 40 characters. If you insert spaces or other parameters not listed, like as dashes, those characters are not counted.

Character	Function
0 through 9	DTMF and pulse digit
* and #	DTMF digit
:	Wait for dial tone
W	Wait for 2nd type of dial tone
>	Pause for 1 second
=	Pause for 3 seconds
<	Pause for programmed delay time
P	Pulse dialing
T	Tone dialing
&	Flash (go on hook) for <Insert equation here> second
;	PARM separator
Space, dash, parenthesis, period	Characters inserted for readability only

V.25 BIS DIALER COMMANDS

Sync Command	Description
CIC	Connect incoming call command
CRN nn...n	Dial command (nn...n = number to be dialed)
0 - 9	DTMF and pulse digit
* #	DTMF digit
:	Wait for dial tone
W	Wait for second type of dial tone
>	Pause for 1 second
=	Pause for 3 seconds
<	Pause for programmed delay time
P	Pulse dial
T	Tone dial
&	Flash (go on hook) for 1/2 second
;	Parameter separator
Space, dash, parenthesis, period	Characters used for clarity
CRR n	Redial the last number a maximum of n times
CRS a	Dial stored number command (a = address)
DIC	Disregard incoming call command
PRK	Save current option settings
PRL a;b	Link number at address a with address b
PRN a;nn...n	Program number command (nn...n = number to be dialed, a = address)
PRO xxx;yy;0;0...	Program options command (xxx = register address, yy = option count)
PRP n	Restores current option settings to the factory defaults in default bank n (1-9)
RLL	Request list of linked numbers command
RLN	Request list of stored numbers command
RLO xxx;yy	Request list of stored options command (xxx = register address, yy = option count)
RLV	Request list of version information command

RESPONSE MESSAGES

Response Message	Meaning
CFIAB	Call failure - answer back tone but no connection
CFIDT	Call failure - no dial tone
CFIET	Call failure - reorder or busy
CFILD	Call failure - link list complete
CFINS	Call failure - number not stored
CFINT	Call failure - no answer back tone, no ringback
CFIRT	Call failure - timeout occurred
CNX @ 33600 bps	Intermediate call progress - connection made at 33600
CNX @ 28800 bps	Intermediate call progress - connection made at 28800
CNX @ 26400 bps	Intermediate call progress - connection made at 26400
CNX @ 24000 bps	Intermediate call progress - connection made at 24000
CNX @ 21600 bps	Intermediate call progress - connection made at 21600
CNX @ 19200 bps	Intermediate call progress - connection made at 19200
CNX @ 16800 bps	Intermediate call progress - connection made at 16800
CNX @ 14400 bps	Intermediate call progress - connection made at 14400
CNX @ 12000 bps	Intermediate call progress - connection made at 12000
CNX @ 9600 bps	Intermediate call progress - connection made at 9600
CNX @ 7200 bps	Intermediate call progress - connection made at 7200
CNX @ 4800 bps	Intermediate call progress - connection made at 4800
CNX @ 2400 bps	Intermediate call progress - connection made at 2400
CNX @ 1200 bps	Intermediate call progress - connection made at 1200
INC	Incoming ring detected
INVCU	Invalid command - command unknown
INVMS	Invalid command - message syntax error
INVPS	Invalid command - parameter syntax error
INVPV	Invalid command - parameter value error
VAL	Valid command received

OPTIONS

You can change the options for the V.25 bis autodialer using the *PRO* command or listed using the *RLO* command. Settings without options are permissive, 2-wire dial-up.

Option	Definition	Settings	Default
002:	Intermediate call progress messages	0 - Disable 1 - Enable	0
003:	Blind dial	0 - Disable 1 - Enable	0
007:	Long space disconnect	0 - Disable 1 - Enable	1
051:	Primary transmit / receive rate	007: 1200 bps 008: 2400 bps 034: 4800 bps 035: 9600 bps uncoded 036: 9600 bps 046: 7200 bps 047: 12,000 bps 048: 14,400 bps 049: 16,800 bps 050: 19,200 bps 051: 21,600 bps 052: 24,000 bps 053: 26,400 bps 054: 28,800 bps 055: 31,200 bps 056: 33,600 bps	54 (28800 bps)
055:	Transmit clock	0 - Internal 1 - External 2 - Receive (slave)	0
063:	Autoanswer	0 - Disable 1 - Enable (answer after 1 to 255 rings)	0
064:	Line current disconnect	0 - Off 1 - Short (8 ms) 2 - Long (90 ms)	2
076:	Speaker control	0 - Off 1 - On 4 - On until CD 6 - Off when dialing	4
077:	Speaker volume	0 - Low 1 - Medium 2 - High	1

Option	Definition	Settings	Default
085:	Constant carrier RTS/CTS delay	0 to 250 ms (in increments of 10 ms)	0
087:	DTR dropout timer DTR must turn off for this length of time to be recognized.	0 to 255 in 10 ms increments	5 (50 ms)
089:	Pause in dial string	0 - Invalid 1 to 255 seconds	2
090:	Carriage return character	ASCII or EBCDIC character range	13 dec
091:	Line feed character	ASCII or EBCDIC character range	10 dec ASCII; 37 dec EB-CDIC
092:	Guard tone	0 = None 1 = 550 Hz 2 = 1800 Hz	0
093:	Carrier detect delay	0 - Off; 1 to 255 in increments of 10 ms	6 (60 ms)
094:	Loss of carrier disconnect	0 - Off 1 to 255 in 100 ms incre-ments	14 (1.4 sec)
095:	DTR dial address - Stored tele-phone number address to dial on DTR off-to-on transition		1
096:	DTR dial	0 - Disable 1 - Enable	0
098:	Call timeout	0 - Off 1-255 sec	30 sec
103:	Signal quality retrain	0 - Disable 1 - Send training sequence on poor quality	1
111:	Modulation mode	000: Automode 001: V.21 002: B103 005: V.22 006: V.22 bis 007: V.27 ter 009: V.29 012: V.32 bis 013: V.34	

Option	Definition	Settings	Default
112	V.34 Select Threshold	000: Low 001: Medium 002: High	
113	V.34 Asymmetric bit rates	000: Disabled 001: Enabled	
903:	Bilateral loop - If enabled and a test is commanded, bilateral loop is defined as follows: **Test Commanded Bilateral Loop** Loop 1 Loop 2 Loop 2 Loop 1 Loop 3 Loop 4 Loop 4 Loop 3 **Loop definitions are per CCITT V.54.**	0 - Disabled 1 - Enabled	0
904:	Computer commanded remote digital loopback	0 - Disable 1 - Enable	0
905:	Computer commanded local analog loopback	0 - Disable 1 - Enable	0
906:	Remote commanded test	0 - Disable 1 - Enable	1
907:	Test timer	0 - Until DTR drops TTT - 1 to 255 sec	0

Caution

Both FCC and IC regulations prohibit user servicing. Any attempt at user servicing voids the warranty on this product.

Many problems result from

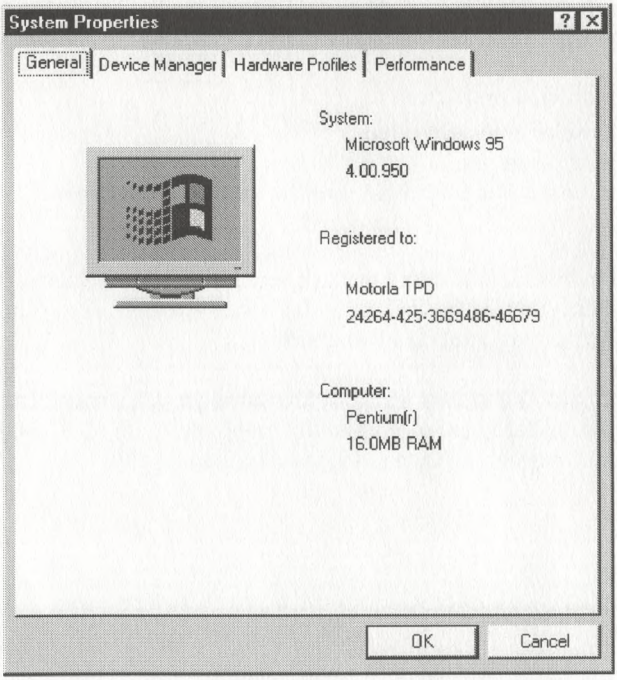
- a loose or defective cable,
- typing errors, or
- a misunderstanding about how the modem should work.

Make sure the cable is hooked up correctly. If this doesn't help, find the section in this manual about the task you are trying to perform. Reread it to confirm that you're following the steps correctly. Try again. If the difficulty persists, see if it's listed below:

You can't get Windows 95 to acknowledge your modem.

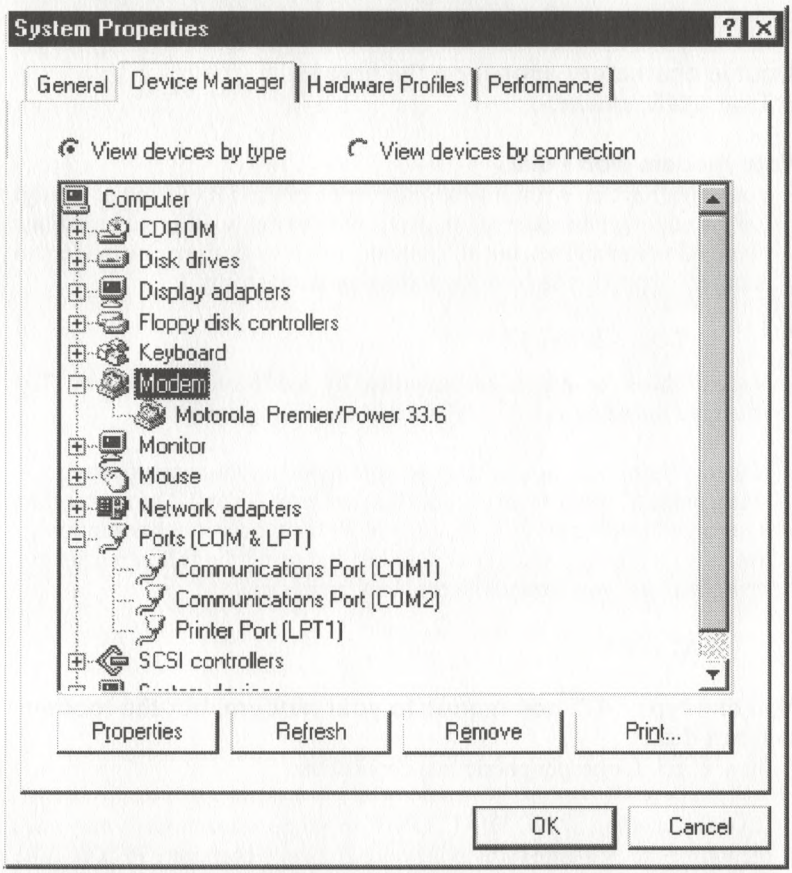
To determine hardware or installation problems, go to *My Computer.* Open the *Control Panel* icon. Choose the *System* icon.

The System Properties dialog screen appears:



Click on *Device Manager.*

The Device Manager dialog screen appears:



Verify that your port settings are valid and no conflicts exist. To check, double click on the Selected Port icon(s).

Your computer screen is blank when you enter a command.

Are you sure the modem is on? If in *Windows*, are you typing the command from *Terminal* mode? Type the command in all upper case (AT) or lower case (at). Try typing **ATE1 <enter>**

Confirm that you've set your Com port and IRQ settings correctly in your communications software program.

Double characters appear on the screen.

Type **ATE <Enter>**

Your modem won't dial.

You either have an error in your setup string or the TR (Terminal Ready) light is not lit on the external modem. With so many different variations of the AT command set, not all commands will work from one modem to another. Suppose you have the following setup string:

AT &K3 &Q6 E1

None of these commands are supported by your Motorola modem. Try changing the setup string to AT&F and try dialing again.

If the TR light does not light up on your modem, you may not have a "fully pinned" serial cable (a cable that has pins 2-8 and 20 for asynchronous operation or pins 2-8, 15, 17, and 20 for synchronous operation). You need to get one as soon as possible, but using the following setup string may get you around the problem temporarily:

AT&F&D0

You can type "AT" commands to your modem, but the modem will not dial.

First, check for proper phone line connection.

If you are getting a "NO DIALTONE" message, your modem may not recognize the dial tone (which is typical in some corporate PBXs). Use the "X1" command in your setup string to enable "Blind dial." You might also need to configure your software for "Blind dial."

Your modem dials and you hear the other modem respond, but you can't connect.

You probably have your telephone line plugged into the wrong jack on the back of your modem. Look for the jack labeled WALL on the back of your modem, and see if the cable from your standard wall-mounted jack is connected to the modem WALL jack.

You hear your modem dial and connect to another modem, but you can't get logged on to your BBS or online service.

There could be one or more of several problems:

1) Port speed too fast (very common)
2) Flow control set incorrectly (very common)
3) Data bit/parity mismatch
4) Error correction problem

Flow control and port speed problems look very much the same. The symptoms are:

- You get connected with your online service or internet provider, but you can't pass any data, or
- You get online and initially exchange data but you keep running into errors or corrupted files.

1. Port speed set too fast

Some older PCs or even newer PCs without a 16550 UART cannot keep up with a speed of 115.2 kbps. Try reducing the port speed to 57600, 38400, 19200, or even 9600 bps. If this doesn't solve your connect problems, it may be a flow control issue or a combination of the two.

2. Flow control set incorrectly

Some software packages will not allow the user to change the flow control settings. Since Motorola modems default to RTS/CTS flow control, you will need to adjust the modem initialization string in your software. A setup string may look like this:

AT&F E0 V1 --or simply: AT&F

To change the flow control of your modem, add the \Qn command (where *n* can be 0,1,2, or 3) to the setup string:

AT&F E0 V1 \Qn --or: AT&F \Qn

If you are using a Mac and you are not sure you have a correctly pinned serial cable, you may want to try using the \Q2 command (CTS flow control).

In some instances, the software or application requirements may be that flow control be disabled completely (especially UNIX users). Use the \Q0 command.

☞ **Note**

When disabling the flow control of the modem, it is advisable to try your connection at lower speeds (9600) and work your way up to higher speeds.

3. When you connect, some of the characters are garbage.
For example, instead of getting "Welcome to The Coolest BBS in the World" you get "We:co)e t% The C%%:est BBS in the W*r:d"

This is usually a "parity" mismatch. You can tell because all of the characters are there but only some are "garbage." Check your terminal settings and adjust them: Most BBSs use 8 data bits, None parity, 1 stop bit (8,N,1). However, some BBSs and online services still use 7 data bits, Even or Odd parity, 1 stop bit (7,E,1 or 7,O,1).

4. Error correction problem
Some modems don't support error control. If the other modem doesn't, your modem is sending it all kinds of special characters requesting an error-controlled connection. The other modem does not know what to do with these characters except send them on to the host computer. The host computer does not know what to do with the characters, so it assumes that there is something wrong and shuts off the port momentarily. Try setting up your modem not to use error control and see if the problem clears.

You can't make a leased line connection. *

Make sure you have selected leased line mode for both the originating and answering modems,

AT&L1

the originating modem is set to force originate,

AT*OR

* *External modem only*

and the answering modem is set to force answer:

AT*OR1

If you are experiencing errors, try lowering the transmit level (AT*TLn).

☞ **Note**
If you're trying to connect and enter any of these commands, remember also to enter ATO to resume your data call.

You can't access remote configuration.

If you can get an RC ESTABLISHED message on your monitor, you've entered remote configuration.

If not, your best bet is to double check the password for the remote modem. Keep in mind also that you cannot access remote configuration at 300 bps *at all.*

If double checking the password and re-entering it doesn't work, see the Calling Technical Support section below.

Synchronous operation doesn't work. *

When all LEDs except AA light up, synchronous operation is active. (AA lights only if the autoanswer option is selected.)

Double check your AT&M command setting to verify your have made the correct selection for your configuration:

&M	Async operation
&M1	Async dialing/sync data
&M2	DTR dialing/sync data
&M3	Manual dialing/sync data
&M4	V.25 bis dialer/BISYNC protocol/sync data ASCII
&M5	V.25 bis dialer/SDLC protocol/sync data NRZ
&M6	V.25 bis async dialer/sync data
&M7	V.25 bis async dialer/async data
&M8	V.25 bis dialer /BISYNC protocol/sync data EBCDIC

* *External modem only*

&M9	V.25 bis dialer /SDLC protocol/sync data EBCDIC NRZ
&M10	V.25 bis dialer /SDLC protocol/sync data ASCII NRZI
&M11	V.25 bis dialer /SDLC protocol/sync data EBCDIC NRZI

If you have confirmed the correct &M command and you still can't enter synchronous operation, see the Calling Technical Support section below.

You can't use the V.25 bis autodialer. *

AS400 IBM computers: You must select V.25 SDLC ASCII NRZ.

Regardless of your select frame format or character set, you should receive a VAL(id) message in the appropriate frame format and a CNX connect message:

Example in BISYNC, ASCII/EBCDIC:

From computer	*To computer*
<sy><sy><stx>CRN<sp>(205)555-0124<etx>	<sy><sy><stx>VAL<etb>

CALLING TECHNICAL SUPPORT

The Service and Support Numbers page near the end of this manual contains several phone and fax numbers available for your convenience. Please call from a location near the computer with the modem. It will help expedite the call if you have the following information available when calling:

- Type of modem -- *33600 BPS Fax Modem*
- Type and version of software: Are you running a communications or fax package?
- Type and version of any other software running at the same time.

☞ **Note**

Do not return the modem without prior instructions.

* *External modem only*

LED Lights -- External Modem Only

The LED indicator lights on the modem keep you updated on the status of the modem and its connections:

HS - High Speed	On	The modem is operating at 16800, 19200, 21600, or 28800 or 33600 bps.
	Off	It's operating at 4800, 7200, 9600, 12000, or 14400 bps.
	Flashing	It's operating at 300, 1200, or 2400 bps.
OH - Off Hook	On	The modem is connected to the phone line, or it's "off hook." This condition is just like a telephone with its receiver off hook.
AA - Auto-Answer	On	The modem will automatically answer a call for you.
	Flashing	It's receiving a ring -- like when a telephone is ringing.
SD - Sending Data	On	The computer connected to your modem is sending data to the modem.
RD - Receiving Data	On	The computer is receiving data from the modem.
CD- Carrier Detect	On	The modem detects a signal from the remote modem. OR The modem is configured to always keep this signal on.
TR- Terminal Ready	On	The computer is ready to send or receive data.
MR - Modem Ready	On	The modem is on and ready for use.
	Off	The modem is not functioning properly. Call Technical Support *(see the end of the Troubleshooting section).*

SPECIFICATIONS

Size

Width	6.40 inches (16.26 cm)
Depth	5.26 inches (13.36 cm)
Height	1.50 inches (3.81 cm)
Weight	10.5 oz. (0.3 kg)

Environmental Conditions

Temperature:	Operation	+32° F to +122° F (0° C to +40° C)
	Storage	-40° F to +158° F (-40° C to +70° C)
Humidity:	0 to 95%	
Relative humidity:	noncondensing	

Power Requirements

Voltage:	115 Vac ±10%; 60 Hz North America plug
AC power consumption:	4.5 watts
Telephone Line	Balanced 600 ohm type 3002 or equivalent 16 dB nominal loss, frequency translation up to ±10 Hz
Digital Interface	Conforms to EIA-232D and ITU-T V.24
Caller ID	Specifications TR-TSY-000030 and TR-NWT-000031
Distinctive Ring	Specification TR-73534
Modem Data Rates	33600, 31200, 28800, 26400, 24000, 21600, 19200, 16800, 14400, 12000, 9600, 7200, 4800, 2400, 1200, and 300 bps
Fax Rates	14400, 12000, 9600, 7200, 4800, 2400, 1200, and 300 bps
Data Modulations	V.34, V.32 bis, V.23, V.32, V.22 bis, V.21, Bell 212, Bell 103

Fax Modulations	**Modulation**	**Speed**
	V.21 channel 2	300 bps
	V.27 ter	2400 bps
	V.27 ter	4800 bps
	V.29	7200 bps
	V.17	7200 bps
	V.17	7200 bps with short train
	V.29	9600 bps
	V.17	9600 bps
	V.17	9600 bps with short train
	V.17	12000 bps
	V.17	12000 bps with short train
	V.17	14400 bps
	V.17	14400 bps with short train

Transmit Output Level	-9 to -30 dBm, selectable (*TDn); automatically adaptive (dynamic) in V.34
Operation	2-wire, full-duplex, PSTN
Carrier Detect Level	Adaptive (dynamic) to -43 dBm
Telco Connection	6-pin modular jack, dial lines
Testing	511 PN pattern (per V.52) V.54 remote loopback control
Line Equalization	Automatic adaptive
RTS/CTS Delay	From 0 ± 2 ms to 90 ± 2 ms, user selectable in 10 ms increments (The default is 0 ms.)
Link Layer Protocols	V.42/V.42 bis error correction and compression protocol MNP levels 2-5 error correction and compression protocol

EIA-232 SERIAL INTERFACE

Pin Definitions:

DB-25	DB-9	Circuit	Function	Signal Source: Computer/Modem
1	--	AA	Chassis ground	Both
2	3	BA	Transmitted data	Computer
3	2	BB	Received data	Modem
4	7	CA	Request to send	Computer
5	8	CB	Clear to send	Modem
6	6	CC	Data set ready	Modem
7	5	AB	Signal ground	Both
8	1	CF	Carrier detect	Modem
12	--	SCF	Speed indicate	Modem
20	4	CD	Data terminal ready	Computer
22	9	CE	Ring indicate	Modem

FCC REQUIREMENTS

This equipment complies with FCC rules Part 68. Located on the equipment is the FCC Registration Number and Ringer Equivalence Number (REN). You must provide this information to the telephone company if requested.

The Registration Number and REN will be inscribed on the printed circuit board on insert cards or on a label attached to either the chassis bottom or metal end-plate on standalone or rack models. In any case the FCC requires these numbers be prominently displayed on an outside surface of the equipment.

The REN is used to determine the number of devices you may legally connect to your telephone line. In most areas, the sum of the REN of all devices connected to one line must not exceed five (5.0). You should contact your telephone company to determine the maximum REN for your calling area.

A variety of Universal Service Ordering Code telephone wall jacks are available for different types of devices or services. Please note that the USOC jack required for this unit is RJ11.

The telephone company may change technical operations or procedures affecting your equipment. You will be notified of changes in advance to give you ample time to maintain uninterrupted telephone service.

If you experience trouble with this telephone equipment, please contact

Motorola
20 Cabot Boulevard
Mansfield, MA 02048

for information on obtaining service or repairs. The telephone company may ask that you disconnect this equipment from the network until the problem has been resolved. If your equipment continues to disrupt the network the telephone company may temporarily disconnect

service. If this occurs you will be informed of your right to file a complaint with the FCC.

This equipment may not be used on coin service provided by the telephone company. Connection to party lines is subject to state tariffs.

An FCC compliant telephone cord and modular plug are provided with this equipment, which is designed to connect to the telephone network or premises wiring using a compatible modular jack that is Part 68 complaint. See installation instructions for details.

FCC FAX BRANDING REQUIREMENTS

The Telephone Consumer Protection Act of 1991 makes it unlawful for any person to use a computer or other electronic device to send any message via a telephone fax machine or modem unless such message clearly contains in a margin at the top or bottom of each transmitted page or on the first page of the transmission, the date and time it is sent and an identification of the business or other entity, or other individual sending the message and the telephone number of the sending machine or such business, other entity or individual.

Programming of this information is a function of the fax software which runs on your computer. In order to program this information, please consult the documentation provided with your fax software.

WARNING

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment generates and uses radio frequency energy. If not installed and used in accordance with the manufacturer's instructions, it could cause interference to radio and television reception. It has been type tested and complies with the limits for a Class B computing device in accordance with the specifications in Part 15 of the FCC Rules designed to provide reasonable protection against interference in a residential installation. There is no guarantee that interference will not occur. If this equipment causes interference to radio or television, as determined by turning the equipment off and on, the user is encouraged to correct the interference by using the following measures:

Reorient the receiving antenna.
Relocate the computer with respect to the receiver.
Plug the computer into a different outlet so the computer and receiver are on different branch circuits.

Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

If necessary, the user should consult the dealer or a radio / television technician for additional suggestions. The following booklet prepared by the Federal Communication Commission is helpful: "How to Identify and Resolve Radio-TV Interference Problems." This booklet is available from the US Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

SHIELDED CABLES

This product has been tested and complies with FCC limits for a Class B computing device. Testing was done with shielded computer cables. Using unshielded cables could cause your system to emit excess radio frequency, increasing the chance of interference. To comply with FCC regulations it is necessary to use shielded computer cables with your installation.

SPECIAL REQUIREMENTS FOR CANADA

Certain requirements exist for data communication products manufactured for use in Canada. Principle among these requirements is the application of the IC label as described below. However, certain data communication products do not require the IC label nor adherence to IC requirements. If this is the case the IC label will not be affixed to the units.

INDUSTRY CANADA (IC) REQUIREMENTS

IC labels are affixed to each unit sold in Canada. This label has the certification number for that particular unit. The numbers are different for each model.

The Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational, and safety requirements. IC does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the company's inside wiring associated with a single line individual service may be extended by means of a certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment. For their own protection users should ensure that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

CAUTION

Users should not attempt to make installation connections themselves, but should contact the appropriate electric inspection authority or electrician.

LOAD NUMBER

The Load Number (LN) assigned to each terminal device denotes the percentage of the total load to be connected to a telephone loop which is used by the device, to prevent overloading. The termination on a loop may consist of any combination of devices subject only to the requirement that the total of the Load Numbers of all the devices does not exceed 100.

CANADIAN EMISSION REQUIREMENTS

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

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Service and Return Procedures

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- Factory Repair 2
- Packaging Guidelines for Equipment Return 3

The following sections apply to U.S. customers only. Non-U.S. customers with questions or concerns regarding return procedures should contact their Motorola Information Systems Group subsidiary or distributor.

Equipment Return Procedures

If you have questions about equipment return procedures, call the Logistics Administration Group at (508) 261-4495 for advice and assistance. If you require either on-site service or unit-exchange service, call the Customer Support Center at (800)-544-0062.

Expiration of Lease

To return equipment upon expiration of a lease agreement, contact your Motorola Information Systems Group Sales Office for return authorization and instructions. A list of these offices follows. When you contact the sales office, you will be asked to provide the following information:

- Product name and description
- Serial number
- Customer order number
- Reason for return

Factory Repair

To return equipment for factory repair, call the Logistics Administration Group at
(508) 261-4495, for return authorization and instructions. When you call, you will be given a Return Material Authorization (RMA) control number. Mark this number clearly on the shipping container for ease of identification and faster service. The RMA control number provides a convenient tracking reference for both parties. Please have the following information available for each piece of equipment you return:

- Product name and description
- Serial number
- Failure symptoms

Packaging Guidelines for Equipment Return

Data communications equipment or parts that are to be returned to Motorola Information Systems Group for any reason must be properly packaged to prevent damage in shipment and handling.

If the original packing material and shipping container are available, reuse these items to return equipment. If these items are not available, it is your responsibility to package the contents in a manner that protects the equipment from damage during normal shipping and handling. Responsibility for damage to equipment during transit must be resolved between you and the carrier. The Logistics Administration group can provide you with specific packaging instructions upon request.

Upgrading Your Product's Flash Memory

Upgrade your Motorola 33.6 bps fax modem easily through this flash update procedure:

WHAT YOU NEED

- *QuickLink* (supplied)
  --or another terminal software package which supports

  a 57.6 kbps computer-to-modem rate and
  "X modem CRC" protocol

- *Flash upgrade file*

  Look for software upgrades to your Motorola 33.6 modem on the Web at this address:

`http://www.mot.com/MIMS/ISG/Service_Support/software.html`

STEPS FOR DOWNLOADING

1. Activate QuickLink or your terminal software package, and set up your terminal for 57.6 kbps.

2. Enter AT.

   You should receive an OK response message.

3. Enter AT%P1=*password (8 digits)*

   For example: AT%P1=12345678

   This entry sets a soft download password. (See AT command set for further information on the %P commands if needed.)

   You should receive an OK response message.

4. Enter AT$Y=*password (8 digits)*

   For example: AT$Y=123456768

Note

For Internal Modems only: After you enter the AT$Y= command, exit your communications program and restart the program.

You should receive this response message:

SOFTLOAD XM86-1
READY

This means that your modem is now ready to be upgraded.

5. From your terminal software package, send the "flash upgrade file" to the modem. You know the download is working because all LEDs light up on the modem.

Note

Be sure you use the "X modem CRC" protocol.

Caution

Do not abort this process once started!

Either one of two messages returns:

DOWNLOAD -- Indicates a successful upgrade

DOWNLOAD ERROR

Enter ATI3 if you want to verify the latest software update.

CAUSES FOR ERRORS

- You did not choose the correct download protocol.

  Response: Repeat the process.

- The upgrade flash file is corrupted.

  Response: Get a clean file and redo the steps

- If all else fails:

  Response: See the section on Calling Technical Support.

Notes

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Notes

Notes

This cover was printed on recycled paper using environmentally safe ink.